# Kenogami Forest
# Independent Forest Audit
# 2000-2005

Prepared by:

kbm
FORESTRY CONSULTANTS INC.
Thunder Bay, Ontario

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**ON THE COVER** Upstream view of Pout River from Pout Road, Kenogami Forest.

2007-00831



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# 1.0 Executive Summary

This audit report, for the Kenogami Forest, is the result of an Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc., under contract to the Ontario Ministry of Natural Resources (MNR). All Crown forests in Ontario must undergo an IFA at least every five years; the requirement for independent audits arising from MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario (2003) Regulation 160/04 of the Crown Forest Sustainability Act (CFSA) sets out the specific requirements for conducting the audits.

The Kenogami Forest audit covers the five-year period April 1, 2000 to March 31, 2005 and the planning and implementation of the 2000-2005 Kenogami Forest Forest Management Plan (FMP). Neenah Paper Company of Canada (Neenah Paper), formerly Kimberly Clark Forest Products Inc., and MNR Nipigon District are the principal auditees. The Kenogami Forest is located in MNR's Northwest Region within the Nipigon District. Neenah Paper has held the Sustainable Forest Licence (SFL) since April 1997 and administers the Forest from its offices in Longlac Ontario. The current Kenogami Forest originated through the combining of several separate forests (Longlac and Nakina Forests, Geraldton Company Management Unit, and a portion of the former Onaman Lake Crown Management Unit).

The Kenogami Forest lies within the Boreal Forest and comprises a total area of approximately 1.98 million hectares (ha) of which nearly 1.44 million ha are Crown-managed production forest lands. Tree species composition is predominantly spruce (51%), poplar (12%), and jack pine (8%) with lesser amounts of balsam fir, white birch, larch and cedar. The Forest landscape is influenced by large natural disturbances including fires, blowdown and spruce budworm. Logging of the Kenogami Forest began in the 1930s. Since then wood from the Forest has supplied a number of different forest products companies. The Kenogami Forest is currently the principal supplier of wood to Neenah Paper's pulp mill in Terrace Bay. In addition, wood from the Forest is directed by the Minister to be made available to six other mills in Longlac and Hearst. Several other mills also received wood from the Forest during the audit term.

The purpose of the IFA is to:

- Assess compliance with the Forest Management Planning Manual (FMPM) and the CFSA;
- Assess compliance of forest activities with the FMPM and the CFSA;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in achieving audit criteria and management objectives;
- Assess the effectiveness of any action plans resulting from previous audits; and
- Assess a licensee's compliance with the terms and conditions of the SFL.

Based on the audit, 30 recommendations were made. Recommendations can arise from audit team observations of material non-conformances, or may be developed to address situations in which the audit team identifies a significant lack of effectiveness in forest management activities. Several of the recommendations address the need for improvements to the planning process whereas the majority of recommendations address either the effectiveness of management or the sustainability of forest values on the Kenogami Forest. The audit team also provided 18 suggestions which are intended to facilitate the continuous improvement of sustainable forestry. Three best practices were noted for aspects of Neenah Paper's silviculture program.

The audit team concluded that, with the exceptions noted in the audit report, management of the Kenogami Forest was in compliance with legislation, regulations and policies and was effective. The Kenogami Forest was managed in compliance with the terms of Sustainable Forest Licence No. 542256 held by Neenah Paper Company of Canada. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team also recommended that the Minister

extend the term of the Neenah Paper Company of Canada Sustainable Forest Licence for the Kenogami Forest to March 31, 2027.

Key recommendations arising from the audit are discussed below.

The audit team believes that measurable indicators and targets, against which progress towards meeting the intent of T&C 77 can be assessed, would be beneficial to all parties. As such, a recommendation was developed requiring MNR to consider, in cooperation with Aboriginal representatives and the forest industry, the merits of developing measurable indicators and targets.

Four recommendations were developed to address the requirement to protect forest values. The first is associated with the outcomes of modelling using the Strategic Forest Management Model (SFMM) where the implications of habitat decline under the selected management alternative must be assessed at an ecoregional scale. The remaining three recommendations dealt with ensuring that values information is collected and available for planning.

Four recommendations were associated with fibre utilization. Silvicultural Ground Rules (SGRs) in the 2000-2005 Kenogami Forest FMP permit the leaving of merchantable aspen poplar, even in aspen dominated stands. Unlike birch, cedar and larch, there are markets for aspen and receiving mills designed to utilize it. The audit team found it unacceptable that the SGRs would allow the harvest of aspen dominated stands without requiring that the aspen also be taken, and a recommendation was developed to address this issue. Efforts are needed to make better use of marginal species, and ensure full reporting of all merchantable fibre left on harvest areas or used as corduroy for road construction, given the significant volumes involved.

The loss of production forest land due to roads, slash piles and landings is a concern and Neenah Paper was directed in this audit to treat and regenerate tertiary roads and landings whenever possible and accurately reflect associated losses to the landbase during planning.

The audit team observed a number of well-installed water crossings; however, improvements are still needed in some areas.

MNR's compliance program needs more resources to ensure that its compliance inspection targets are met. As well, improvements to District Compliance Plans are necessary to better focus compliance inspection efforts and activities on areas of greatest risk.

The audit team noted the need for significant improvements to forest management planning requirements that set the stage for the assessment of forest sustainability. Forest units must be finalized on all Crown Forests without delay in order to bring long-term stability to the assessment. Similarly, a consistent set of sustainability indicators and associated methodology for their assessment must also be finalized.

Rod Seabrook, CEA(SFM) EMS(LA)
Lead Auditor, on behalf of the Audit Team

# 2.0 Introduction

This audit report presents the results of the Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc. (KBM) on the Kenogami Forest for the five-year period from April 1, 2000 to March 31, 2005. The audit covers the planning and implementation of the 2000-2005 Kenogami Forest Forest Management Plan (FMP). The Kenogami Forest is managed under a Sustainable Forest Licence (SFL) held by Neenah Paper Company of Canada (Neenah Paper).

Throughout this audit report the audit team's reference to 'the Company' refers to Neenah Paper. As the managers of the Kenogami Forest, the principal auditees are both Neenah Paper and MNR Nipigon District. Other auditees include overlapping licensees, contractors and other branches of MNR to the extent that forest management activities carried out by them are the subject of audit examination.

## 2.1 Audit Process

### 2.1.1 Purpose

The Independent Forest Audit Process and Protocol[1] (IFAPP) was developed by MNR to provide a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP states that the purpose of an Independent Forest Audit is to:

- Assess compliance with the Forest Management Planning Manual (FMPM) and the Crown Forest Sustainability Act (CFSA);
- Assess compliance of forest activities with the FMPM and the CFSA;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in meeting forest management objectives;
- Assess the effectiveness of any action plans resulting from previous audits; and
- Assess a licensee's compliance with the terms and conditions of the Sustainable Forest Licence.

[1] MNR. 2005. Independent Forest Audit Process and Protocol. Queens Printer, 27 pp. + Appendices.

### 2.1.2 Audit Process Overview

The IFAPP contains 158 criteria and 409 procedures, 336 of which apply to the Kenogami Forest audit. The audit procedures serve as a framework to provide a structured approach to evaluating whether or not forest management activities meet the requirements governing forestry practices on Crown land in Ontario.

The previous Independent Forest Audit (IFA) conducted on the Forest was undertaken in 2000[2]. The implementation of recommendations contained in the previous audit was examined during the course of this audit (see Section 3.8).

The audit process for the Forest consisted of six components:

1. *Audit Plan*[3]: KBM prepared an audit plan that described the schedule of audit activities, audit team members and participants, and auditing methods. The plan was submitted to MNR, Neenah Paper, the Forestry Futures Committee (FFC), and the Chair of the Geraldton Area Natural Resource Advisory Committee (GANRAC). GANRAC serves the function of the Local Citizens Committee (LCC).

2. *Public Survey*: KBM prepared a one-page public survey that was distributed to all organizations and to a random sample of one-third of the individuals listed in the FMP mailing list provided by MNR. It was also sent to all overlapping licensees, contractors, commitment holders and tourist operators. In addition, the public notice was posted on and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. A copy of the survey is found in Appendix F.

[2] Callaghan & Associates Inc. 2000. An Independent Audit of Forest Management on the Kenogami Forest for the Period 1995-2000, 47 pp. + Appendices.

[3] KBM Forestry Consultants Inc. 2005. Kenogami Forest Independent Forest Audit Audit Plan. 15 pp. + Appendices.

Notices were placed in five local newspapers (Wawatay News, Thunder Bay Chronicle Journal, Geraldton Times Star, Terrace Bay-Schreiber News, and Longlac Advertiser Plus) soliciting public input on forest management activities on the Forest for the period under audit. A copy of the public notification is found in Appendix G.

Six responses were received as a result of the public survey mail-out. A summary is presented in Appendix E.

3. *Field Site Selection*: The audit team carried out a preliminary site selection process prior to meeting with Neenah Paper and MNR staff. Annual Work Schedules (AWSs) and Annual Reports (ARs) were used to ascertain the amount and type of forest operations carried out on the Forest during the course of the audit term. A stratified random sample of sites was then selected to ensure that selected sites were representative of activities conducted on the Forest during the audit term. A pre-audit meeting was held in Longlac on July 12 and 13, 2005. Much of the pre-audit was spent with Neenah Paper and MNR conducting the preliminary site selection for the field portion of the audit.

4. *Pre-audit Document Review*: Prior to the nine-day site visit, the audit team reviewed documents provided by Neenah Paper and MNR, including the:
   a) 2000-2005 Kenogami Forest FMP;
   b) 1990-1995 Report of Past Forest Operations (RPFO) for the Kenogami Forest;
   c) 2000-2004 Annual Reports;
   d) Comparison and Trend Analysis of Planned versus Actual Forest Operations (TAR);
   e) 1995-2000 Independent Forest Audit Report for the Kenogami Forest;
   f) Action Plan for the 2000 Independent Forest Audit of the Kenogami Forest;
   g) Status Report on the Action Plan for the 2000 Independent Forest Audit for the Kenogami Forest.

5. *On-Site Audit*: The audit team spent nine days on site conducting the field portion of the audit (August 22 to 30). The audit team conducted interviews with staff from Neenah Paper, MNR, the two principal overlapping licensees and wood supply commitment holders. The audit team also conducted interviews with LCC members at both an evening meeting with the LCC and in some cases separately. In addition, the First Nations Auditor conducted interviews with representatives of three of the five First Nation communities, the Weskit-chi Trappers Association representative, the First Nations planning team member, and MNR and Neenah Paper staff. Repeated efforts to solicit input from Pays Plat First Nation and Ginoogaming First Nation were unsuccessful. The audit team examined documents, records, and maps at Neenah Paper and MNR offices, and spent three days in the field examining forestry practices at 40 field sites.

   A closing audit meeting was held in Longlac on August 30. This meeting provided a forum for the audit team to present and discuss preliminary audit results with Neenah Paper, MNR, and the LCC.

   KBM committed to a sampling range of between 10 and 25% of key activities and operations conducted on the Forest.

   Table 1 presents the sampling intensity of the field visits completed on the Forest. The objectives of the field site visits were to confirm that on-the-ground activities were conducted according to plan, conformed to provincial laws, regulations, and guidelines, and were effective.

*Table 1. Audit Sampling Intensity for the Kenogami Forest.*

| Activity | Total Area/Number (2000-2005) | Area/Number Sampled | Percent Sampled |
|---|---|---|---|
| Harvest (ha) | 70,815 | 12,369 | 17 |
| Renewal & Maintenance (ha) | 73,617 | 12,742 | 17 |
| Free-to-Grow (ha) | 91,820 | 10,596 | 12 |
| Area of Concern Categories* (#) | 14 | 10 | 71 |
| Roads Construction (km) | 79 | 58 | 79 |
| Road Maintenance (km) | 1,840 | 345 | 19 |
| Specified Procedures Review** (ha) | 12,067 | 2,887 | 24 |

* Area of Concern (AOC) categories refer to the different types of AOCs present on the Kenogami Forest. Examples would include riparian reserves, cool water fisheries, osprey nests, etc. More than one AOC was associated with most sites selected for review of harvest and renewal operations. In addition, some sites were specifically selected to represent a cross section of AOCs.

** The Specified Procedures Review involved the verification of maps, records, and fieldwork associated with Forest Renewal Trust Account expenditures for 2003-2004.

A sample of all key forest management activities was examined on the ground. Due to the large size of the Forest and access constraints, the audit team relied on a helicopter to reach a number of the field sites. Figure 1 presents the locations of the field sites.

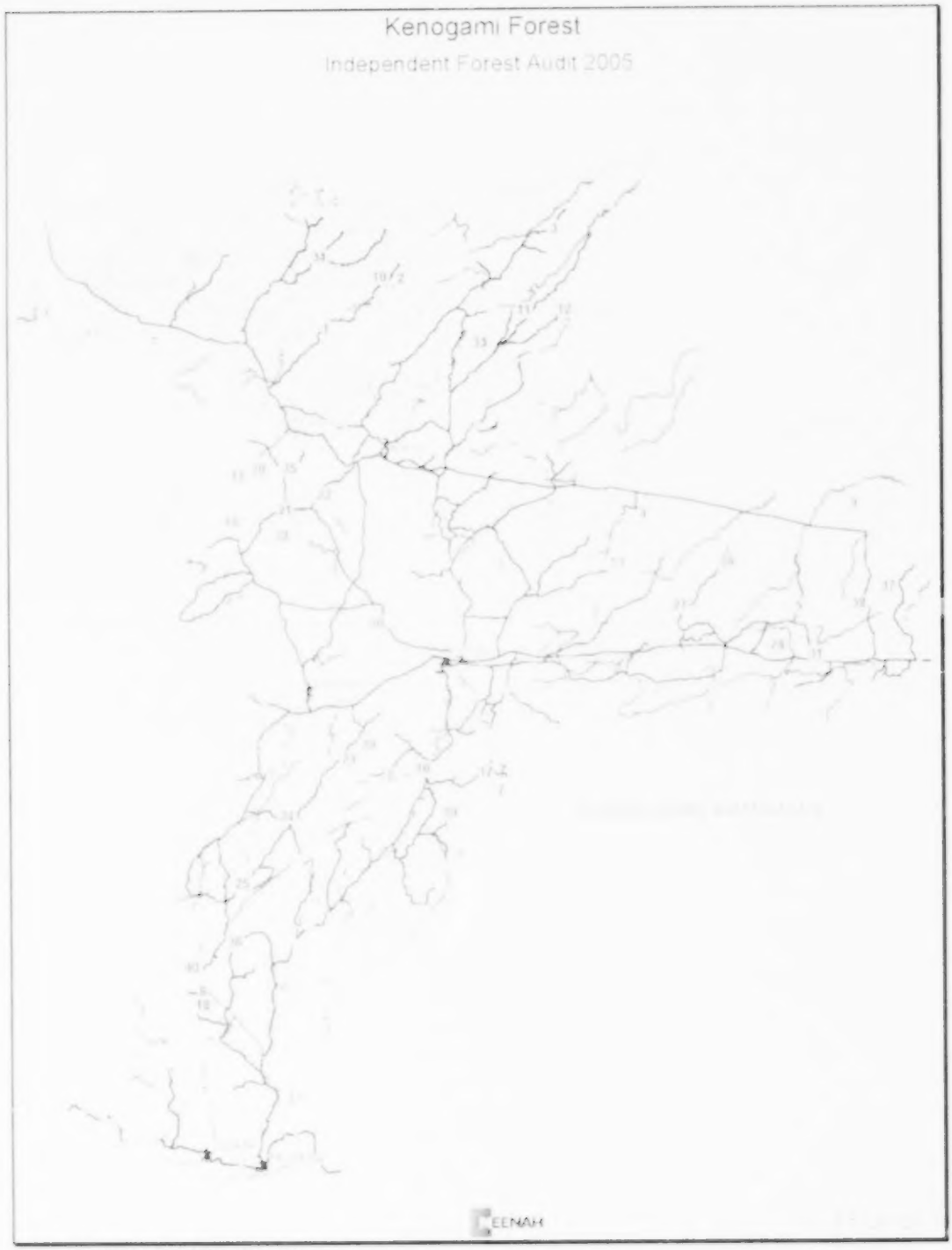



*Figure 1. Audit Field Site Locations.*

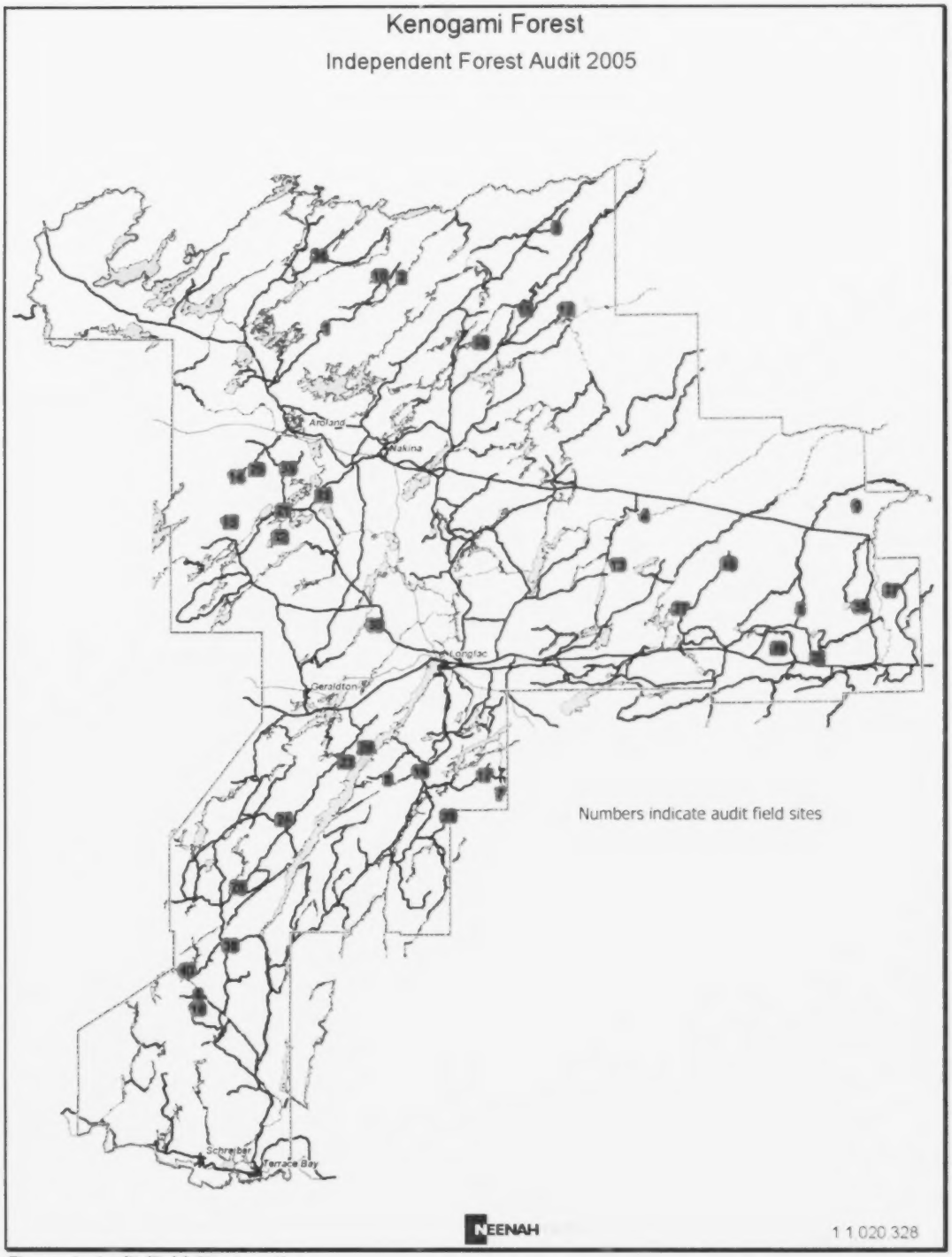



*Figure 1. Audit Field Site Locations.*

6. *Final Report*: The audit results are presented in conjunction with a brief description of the audit process and the forest licence area under review. Within the report, an important distinction is made between recommendations and suggestions. Recommendations draw attention to deficiencies in forest management that require corrective action. In most cases, Recommendations are a result of non-conformance to a law and/or policy, or specify a lack of effectiveness in forest management activities. Recommendations arising from this audit must be addressed in an action plan developed by Neenah Paper in consultation with the District Manager and designated Regional and Forest Management Branch representatives, as per Appendix E of the IFAPP. Suggestions are less serious in nature, and provide advice for improving particular aspects of forest management. The auditee is not required to address suggestions in the action plan. A best practice highlights an exceptional management practice or high level of performance noted on the Forest.

### 2.1.3 The Audit Team

The audit was carried out by an independent audit team assembled by KBM Forestry Consultants Inc. under contract with MNR. The audit team consisted of eight members:

- Rod Seabrook, CEA(SFM), EMS(LA), Lead Auditor
- Peter Higgelke, R.P.F., Planning Auditor
- Tom Richardson, Harvest Operations Auditor
- Peter Street, R.P.F., Silviculture Auditor
- John McNicol, Wildlife/Ecology Auditor
- Susan Jarvis, R.P.F., Forest Modelling (SFMM) Auditor
- Mary Anne Seabrook, First Nations Auditor
- Dave Thomson, R.P.F., Audit Secretariat

Audit team members and their responsibilities are described in Appendix B.

### 2.1.4 Guiding Principles

The IFAPP identifies the components of the audit process. The audit protocol is the main body of the audit and consists of principles, criteria, and procedures. There are eight guiding principles within the audit protocol (Appendix C). Each principle contains a series of criteria that guide the audit team during its assessment of the achievement of the principles. Under each criterion a number of procedures serve to assess the auditee's compliance and effectiveness. KBM assigns each of the applicable procedures to an auditor, who in turn examines the evidence for conformity to the procedure.

## 2.2 Forest Management Context

### 2.2.1 Location of the Kenogami Forest

The Kenogami Forest is located approximately 300 kilometers northeast of Thunder Bay in the Nipigon District of MNR's Northwest Region (Figure 2). Communities located within the boundaries of the Kenogami Forest include: Terrace Bay, Schreiber, Rossport, Longlac, Geraldton and Nakina, as well as Long Lake #58 First Nation, Ginoogaming First Nation, Aroland First Nation and Pays Plat First Nation.

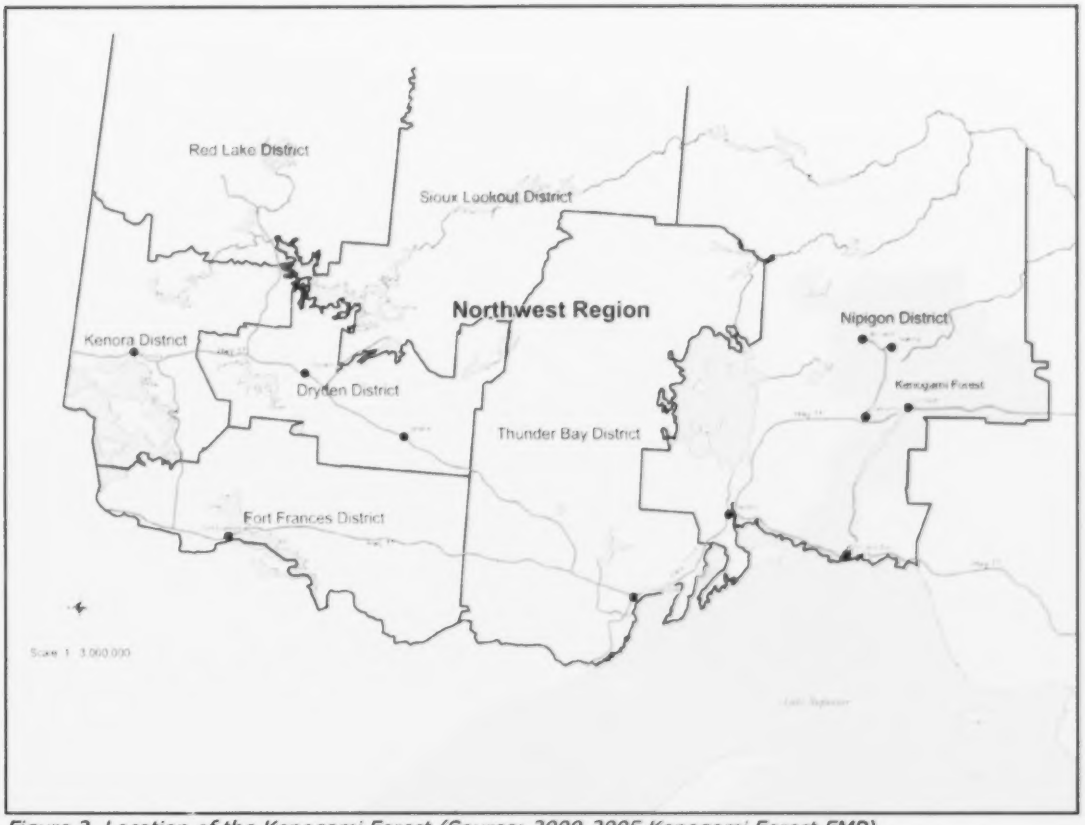



*Figure 2. Location of the Kenogami Forest (Source: 2000-2005 Kenogami Forest FMP).*

### 2.2.2 Kenogami Forest Overview

The current Kenogami Forest originated through the combining of several separate forests (Longlac and Nakina Forests, Geraldton Company Management Unit, and a portion of the former Onaman Lake Crown Management Unit). Neenah Paper administers the Kenogami Forest from its Longlac Woodlands office and utilizes fibre from the Forest in the Neenah Paper pulp mill in Terrace Bay. Historically, the Kenogami Forest has supplied approximately 60% of the mill's annual requirements, either directly or through fibre trades. Neenah Paper has held the SFL since April 1997. Overlapping licensees are Longlac Wood Industries (LWI) and Lecours Lumber, with mills in Longlac and Calstock respectively.

Logging of the Kenogami Forest began in the 1930s. Since then wood from the Forest has supplied a number of different forest products companies. The Kenogami Forest is currently the principal supplier of wood to Neenah Paper's pulp mill in Terrace Bay. In addition, wood from the Forest is directed by the Minister to be made available to five other mills in Longlac and Hearst. Several other mills also received wood from the Forest during the audit term.

The Kenogami Forest lies within the Boreal Forest and comprises a total area of 1.98 million (ha) of which approximately 1.44 million ha are Crown-managed production forest (Figure 3). Tree species composition is predominantly spruce, poplar, and jack pine with lesser amounts of balsam fir, white birch, larch and cedar (Figure 4). The Forest landscape is influenced by large natural disturbances including fire, blowdown and spruce budworm.

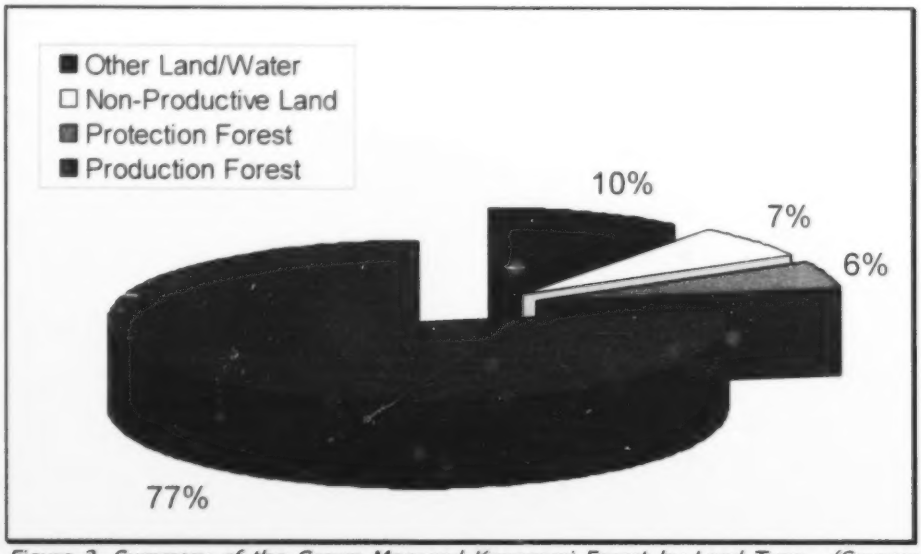



*Figure 3. Summary of the Crown Managed Kenogami Forest by Land Type. (Source: Table FMP-1, 2000-2005 Kenogami Forest FMP.)*

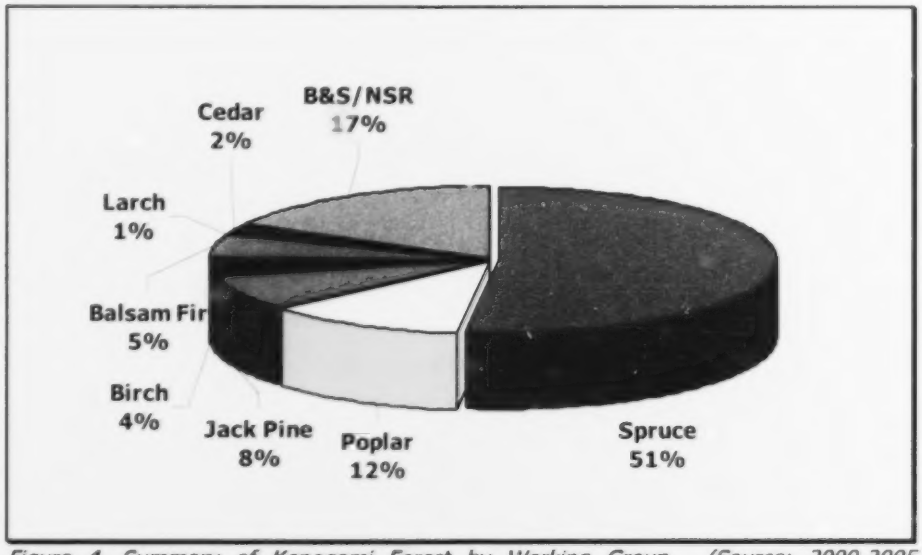



*Figure 4. Summary of Kenogami Forest by Working Group. (Source: 2000-2005 Kenogami Forest FMP.)*

### 2.2.3 Issues Impacting Forest Management

The IFAPP requires a review of high priority aspects (HPAs) of the auditees' systems or activities before the site visits take place. HPAs can include significant management challenges that are inherent to the Forest (e.g. presence of woodland caribou or extensive areas of sensitive soils), or can be specific issues that have arisen during forest management planning or plan implementation (e.g., conflicts with other forest users over proposed forest management activities).

The audit team requested that the auditees compile a list of HPAs for consideration during the audit. Following discussions with the auditees, five HPAs were identified and included in the Audit Plan. The audit team considered the HPAs during the conduct of the audit and a summary of findings is provided below. Additional discussion is also found in the audit report.

**Wood Supply:** A number of factors have led to significant declines in wood supply, including land withdrawals and extensive natural depletions. However, the full allowable harvest volume has not yet been achieved for any forest unit and some species remain significantly underutilized.

Salvage opportunities potentially available under Forest Accord Article 11 have not materialized over the inability of MNR and Neenah Paper to come to agreement on the method of assessing areas prior to approval. (See Section 3.3.7)

Neenah Paper has two primary issues with Forest Accord Article 11:

- Areas that qualify as low-volume Opportunity 1 count against the Available Harvest Area (AHA).
- The Ministry of Natural Resource's required sampling intensity to meet the criteria for low volume (Opportunity 1) salvage approval is far too high.

**Forest Resource Inventory:** Neenah Paper recognized that actual yields were less than projected yields during implementation of the 2000-2005 FMP. The Company responded by initiating a project to refine yield estimates in stands damaged by spruce budworm. This information was applied to the 2005-2010 FMP and experience will tell whether current yield projections better reflect actual yields. (See Section 3.3.6)

**MNR Capacity:** MNR staff were concerned about their capacity to fulfill their forest management obligations, in particular with respect to timely collection of values information and compliance duties. The audit team noted deficiencies in these areas as well and made recommendations to address them. (See Sections 3.3.7; 3.6.1)

**First Nation Issues:** The securing of Aboriginal values information and sharing in the benefits from forest management planning have been challenges on the Kenogami Forest. Values information was gathered with the cooperation of several First Nation communities. However, this information has not been provided to MNR, who funded its collection. Outstanding issues remain with the communities and an Aboriginal trappers association regarding written agreements associated with release of the values information. (See Section 3.3.7.)

Aboriginal people derive benefits from the forest management on the Kenogami Forest. Whether these benefits meet the expectations of T&C 77 is at present highly subjective. In the audit team's opinion, the assessment of progress with respect to T&C 77 requires measurable indicators and targets. (See Sections 3.2.3; 3.6.2; 3.8.)

**Trapper Issues:** Timber harvesting and trapping interests are often at odds with each other. Forest management planning takes into account protection of known trapping values such as trap cabins and trails, but is not obligated to protect entire trap lines from harvesting. The audit team found that Neenah Paper was receptive to input from trappers and took appropriate steps to protect known values. As well, Neenah Paper had conducted a separate analysis of the extent of harvesting on individual trap lines, and considered this information when developing allocations. Throughout the 2000-2005 FMP term, Neenah Paper provided maps of planned annual operations to individual trappers. (See Section 3.2.2)

# 3.0 Summary of Audit Findings

## 3.1 Commitment

An organization's policy acts as an important guide, providing a basis for making decisions in a consistent and reasoned manner. Policies help to ensure that decisions and actions undertaken by staff are related to the goals and objectives of the organization.

MNR and Neenah Paper have policy statements outlining their commitment to sustainable forest management. MNR's commitment is described in the Policy Framework for Sustainable Forests[4] and the 2005 policy statement Our Sustainable Future[5]. Neenah Paper is certified to the ISO 14001:2004 environmental management system standard and the American Forest & Paper Association (AF&PA) Sustainable Forestry Initiative (SFI) forest certification standard. Neenah Paper's policy statement outlining their commitment to SFI includes affirmation for:

- continuous improvement in the conservation of long-term forest health and productivity;
- responsible reforestation and protection of areas of special significance;
- forest land stewardship;
- stakeholder involvement.

Interviews conducted during the site visit indicated that staff members were aware of their respective organizations' policies and the goals contained therein. Both Neenah Paper and MNR demonstrated a commitment to adhere to the rules and regulations governing forest management activities. Neenah Paper has demonstrated a commitment to continuous improvement in its compliance planning and reporting and is prepared to take actions to correct or mitigate any compliance incidents. There is a good working relationship between MNR and Neenah Paper compliance staff.

[4] MNR. 1994. Policy Framework for Sustainable Forests. 5 pp.
[5] MNR. 2005. Our Sustainable Future. 21 pp.

## 3.2 Public Participation

### 3.2.1 Local Citizens Committee

As a requirement of forest management planning, an LCC must be established to assist the plan author and planning team in preparation of the forest management plan and provide the MNR District Manager with advice when discretionary decisions are required. The LCC is to act mainly in an advisory capacity, representing the public interest.

The LCC for the Geraldton-Nakina-Longlac area was established in February, 1994 to provide assistance in the development of several Timber Management Plans (TMPs). The mandate of the LCC expanded after completion of these TMPs to include other resource management issues identified by MNR within the Geraldton Administrative Area. The LCC has since changed its name to GANRAC (Geraldton Area Natural Resources Advisory Committee) and now acts as the LCC for both the Kenogami and Ogoki Forests. The LCC is referred to as GANRAC throughout the remainder of the audit report.

Meeting locations alternated between Longlac and Geraldton and were generally well attended. Membership continuity was evident with some members participating since committee inception. GANRAC membership includes alternates who can participate in meetings coincidentally with the actual member. This participation is encouraged to ensure that alternates maintain currency with issues and information presented. Interviews with members and the MNR liaison, and a review of meeting minutes, illustrated that GANRAC is active in forest management planning, including Information Centres, as well as in other matters as required under the FMPM.

GANRAC regularly communicated to the general public, both through newspaper articles and its newsletter *The Forest Mosaic*. These efforts were designed to keep the public informed of resource issues in the area, and in the case of *The Forest Mosaic*, to solicit public input and involvement. The Forest Mosaic also summarized GANRAC's involvement in resource management issues, listed the names and telephone numbers of its members,

and encouraged the public to contact its members to express views and concerns.

GANRAC reviews its membership annually and advises the District Manager of the membership status. Where stakeholders have a representative organization, that organization normally nominates a member and an alternate for GANRAC. Where there is no formal organization representing the stakeholder interest, a GANRAC member and an alternate will be recommended by GANRAC as a whole for appointment by the District Manager.

GANRAC membership is to include a range of interests in the area. During interviews, several members of GANRAC expressed concern about its composition, particularly with respect to the lack of remote tourism representation, despite continuous efforts to attract a representative, and the potential over-representation of timber interests.

**Suggestion 1: The Ministry of Natural Resources should continue to pursue representation of remote tourism interests on the Geraldton Area Natural Resources Advisory Committee.**

Although GANRAC makes an effort to maintain membership that reflects the interests of the area, concerns were expressed by past and present members about the over-representation of timber interests, alluding to a lack of balance on GANRAC. Interviewees also stated that some members, while purporting to represent certain interests, were either directly employed by or owned and operated businesses that served the forest industry. This was felt to exacerbate the imbalance and lead to perceptions of conflict of interest.

**Suggestion 2: The Ministry of Natural Resources should ensure that the next Terms of Reference for the Geraldton Area Natural Resources Advisory Committee include provisions for a balance of interests and consideration for declaration of conflict of interest and procedures to deal with them.**

The audit team makes this suggestion recognizing difficulties in attracting individuals to participate on GANRAC and that the forestry sector is a dominant player in the business community in the area.

Fundamentally, LCCs serve to provide a means for volunteer public involvement in forest management. Training is generally required to ensure that public members can meaningfully represent the concerns of their respective interest groups when dealing with the complexities of forest management and the planning process. During the 1995-2000 Independent Forest Audit, members of GANRAC raised this as a concern and the audit team made the following recommendation:

*The OMNR should assist the LCC in developing a training plan for its members and should supply the necessary resources to provide its training.*

As required, an action plan for the recommendation was developed and a training plan was developed. The training plan involved the nine FMP training modules as delivered to planning teams by MNR. However, after four of the planned training sessions, GANRAC members saw the modules as too complex and difficult to follow, and decided not to continue. The chosen route thereafter was to invite experts to make presentations on specific subjects of interest to GANRAC. In this way GANRAC members focused less on the overly complex subject areas of forest management and more directly on topics which were both relevant and timely. Interviews with GANRAC members suggest that continued efforts are needed to design a training plan that is both understandable and meets the needs of the members representing non-forestry groups with respect to forest management planning.

The Forest Management Branch of MNR developed an LCC training package which was recently distributed to planning teams. The training package might alleviate some of the training concerns expressed by members of GANRAC to the audit team. The audit team concurs with the need for LCC training that is relevant and developed for public members, and in light of MNR's development of the new LCC training package, makes the following suggestion:

**Suggestion 3: The Ministry of Natural Resources should:**

**a) deliver the new Local Citizens Committee training package to the Geraldton Area Natural Resources Advisory Committee, and**

**b) determine with the Geraldton Area Natural Resources Advisory Committee the need for additional specific training and provide additional training as needed.**

Members of GANRAC stated the need for more interaction with other LCCs as a means to share ideas and develop a more effective committee and participatory membership. The Northwest Region of MNR organized and supported a multi-LCC meeting in 2003 and two GANRAC members attended. The audit team believes that input by any members of the public, including LCC members, to the forest management planning process is vital to ensure that public concerns are meaningfully addressed in the forest management planning process. Interaction between LCCs is a means to promote the exchange of ideas, improve LCC member knowledge and provide for more meaningful involvement by LCC members.

**Suggestion 4: The Ministry of Natural Resources should support further opportunities for Local Citizens Committees in the Northwest Region to share ideas and knowledge.**

The 1995-2000 IFA spoke to the LCC's "concerns and disappointment in the Socioeconomic Impact Model (SEIM) which was used in the development of the 2000 plan." In summary, GANRAC members felt that the model did not address local economic conditions and the 2000 IFA made the following recommendation:

*OMNR should conduct a thorough assessment of local socioeconomic impacts of forest use, especially in the forest industry and resource-based tourism sectors, as a part of the next planning process.*

The corresponding action plan dealt with the matter in a two-phase approach. MNR would improve reporting and interpretation of SEIM outputs in FMPs and review its approach to socioeconomic analysis and impact assessment. The first phase was completed while the second, according to the action plan status report, was ongoing. The second phase has now been completed and is described in FMPM 2004. Although a social and economic assessment is still required, the modelling tool to perform the task has not been stipulated.

GANRAC has served its mandate well, participating in the process as required including the forest management planning process, communicating with the public, public information centres, reviewing and participating in the categorization of amendments, participating in the issue resolution process, and assisting in monitoring performance of plan implementation.

### 3.2.2 FMP Standard Public Consultation Process

The 1996 FMPM describes the specific requirements of public participation during the preparation of FMPs. Stage Two of the public consultation process requires the issuing of the Notice of the First Information Centre, at least 30 days before its date and requires "that for each stage of public consultation, direct written notice from the MNR District Manager will be provided to the appropriate people, including interested and affected individuals and organizations and the general public".

The First Information Centres for the 2000-2005 Kenogami Forest FMP were held in Longlac, Terrace Bay and Nakina on October 20, 21 and 22, 1998, respectively. Unfortunately, the required written notice to the public was overlooked. MNR staff attempted to correct this situation by trying to contact individuals by telephone during the week in which the First Information Centres were being held. Subsequently, an additional First Information Centre was scheduled for December 3, 1998 in Geraldton and direct written notice was sent on approximately November 3. The audit team was unable to find a record of the date the letter was actually mailed, but a returned letter was date stamped Nov. 19th, 1998.

Comments were received from the public during each stage of the planning process and all comments were responded to by the planning

team and documented. AWS, aerial herbicide and prescribed burn notices were issued in accordance with the FMPM requirements.

Only one issue required resolution through the standard issue resolution process as described in the FMPM. The issue was resolved thereby negating a request for an individual environmental assessment. During a telephone interview, the proponent of this issue stated that satisfactory resolution of the issue was achieved.

The 2000 IFA noted that Neenah Paper was increasingly dealing with concerns raised by trappers. In their view the Company was making genuine efforts to deal with trappers' concerns and had started producing a map for trappers that presented road and broad forest type information, and that the map was helping in their communications with trappers. The audit team suggested that the Company continue to work with local trappers to reduce conflicts. Neenah Paper and MNR developed four actions, as part of the audit action plan, to address the suggestion. According to the audit action plan status report, submitted in December, 2003, three of the actions were completed and one was ongoing. The actions included provision of maps to primary trap line holders, attendance at a district trappers' council meeting and revisions to the District mailing list to automatically include all 01 (primary) trappers so that they were assured to receive pertinent planning correspondence.

The current audit team encourages the Company to continue its efforts to improve communications and relations with local trappers, as they are an important stakeholder group on the Kenogami Forest.

### 3.2.3 Native Peoples Consultation

The CFSA and the FMPM require opportunity for Native (Aboriginal under the 2004 FMPM) input and involvement in the forest management planning process. Native communities have the option of participating in the regular public consultation process or choosing the additional consultation referred to as the Forest Management Native Consultation Program (FMNCP). Through this process, members of identified Indian Reserves, Band Councils, Treaty Organizations, or Tribal Councils are contacted by MNR regarding forest management planning in their area of interest. Public notices are posted in the Aboriginal media and in the Native language where required. MNR, with representatives of interested Aboriginal communities, also produce a Native Background Information Report that is used to prepare the Report on the Protection of Identified Native Values.

Five First Nations in or adjacent to the Kenogami Forest were invited to participate in the development of the 2000–2005 Kenogami Forest FMP and were provided the option of having a FMNCP as per Stage One FMP Notification and Invitation to Participate requirements. These included the Aroland, Long Lake #58, Ginoogaming, Constance Lake, and Pays Plat First Nations. The requirement to have the notices in their native language was asked at a planning team meeting and noted that it was not required by the First Nations.

All of the First Nations opted for the FMNCP by each community choosing to hold two Information Centres in the form of community feasts. The first sets of Information Centres were held in each First Nation community with the exception of Long Lake #58, (who forgot about their scheduled Information Centre). Some of Long Lake #58 members attended the Information Centre at Ginoogaming First Nation. Both MNR and the former Matawa First Nations Management Group forester confirmed that all of the required documentation was available for review at the community Information Centres. The second set of Information Centres/community feasts were held but without the presence of MNR or Company staff, at the request of the First Nations.

Stage Two FMNCP Notice requirements were not met. There was no evidence of a notice sent by MNR for the FMNCP. MNR staff stated that the notices for the FMNCP Information Centres were left to the responsibility of the former Matawa First Nations Management Group forester who was also organizing the Information Centres. While the notice letter specified the dates, times and location, it did not contain the FMNCP Stage Two requirements (a) to (j) of the FMPM. According to the Terms of Reference for the planning team and the Communication Plan for the 2000-2005 FMP, the responsibility for ensuring notice requirements

were met was MNR's and not the Matawa forester's.

Stage Three FMNCP Notice requirements were not met. The Preliminary Report on Protection of Identified Native Values (PRPINV) (Draft Native Values Protection Agreement) was produced by MNR in April 1999, with the involvement of representatives of Neenah Paper, Matawa First Nations Management Group and three of the five First Nation communities. The PRPINV was subsequently faxed to the First Nations for their review, without the Notice and its requirements (a) through (l). MNR staff advised that the First Nations would not accept the Draft Native Values Protection Agreement, so no notice was required. However the FMPM requires the PRPINV to be sent with the notice.

Stage Four FMNCP Notice requirements were not required as it appeared the process ended during Stage Three.

During planning for the 2000-2005 FMP, the First Nations were sent all of the Standard Public Notices although the Notices did not coincide with the FMNCP schedule. The FMNCP Information Centres were a year later than the standard Information Centres.

The Draft Native Background Information Report (DNBIR) was produced by MNR without the involvement of the First Nation communities. The information for the DNBIR was obtained from data available within MNR and some updates provided at the First Information Centre. First Nation communities felt that funding was required for values collection before they could contribute to the DNBIR. Collection of Aboriginal values information is discussed further in Section 3.3.7.

There was no evidence to indicate that the final Native Background Information Reports were sent to the Ontario Native Affairs Secretariat (ONAS) as required. MNR staff stated that they were certain a copy was sent to ONAS; however MNR could not produce evidence to verify this.

As there were errors in following the FMP manual requirements for notices associated with the FMNCP, and no evidence of reports being sent to ONAS, the following recommendation is made and a suggestion for a method to ensure all requirements are met is offered.

**Recommendation 1: The Ministry of Natural Resources must ensure that all Forest Management Planning Manual Requirements pertaining to notices and reports for Aboriginal involvement in forest management planning are met.**

**Suggestion 5: The Ministry of Natural Resources should develop a file check list to ensure that all requirements pertaining to notices and reports for Aboriginal involvement in forest management planning are met.**

Regarding negotiations with Aboriginal communities, the District Manager advised the audit team that he is prepared to initiate negotiations as opportunities become available. There have been discussions with the First Nations carried out by MNR in regards to Term and Condition 77 (Condition 34 since 2003); however the evidence provided by MNR (T&C 77 reports) was inadequate to show what progress was made to date as a result of these discussions, other than an Agreement with the Matawa First Nations Management Group, (agreement is no longer in existence). This Agreement outlined the procedure for identification and allocation of forest management opportunities. While some contracts were awarded to Matawa First Nations Management Group to coordinate among the five First Nations, First Nations feel there has been limited progress in implementing Condition 34.

It is the audit team's view that the expectation of the original EA Decision was that the benefits accruing to Aboriginal peoples from the implementation of Condition 34 would be over and above what has historically been available to them. This view is consistent with statements contained in MNR's T&C 77 interpretation document[6]. However, a baseline against which to evaluate progress has not been established. Appendix 4 of MNR's T&C 77 interpretation and

[6] MNR. 1999. Draft - Condition 77 Revised Interpretation and Guidelines, Timber Class Environmental Assessment. 13pp + Appendices.

guidelines document discussed the need to establish baseline information to enable progress to be measured.

Unlike other aspects of forest management (timber supply and environmental elements), social aspects generally lack measurable indicators and targets. This is especially the case with respect to Condition 34. The lack of measurable indicators, targets and baseline information makes the assessment of progress highly subjective and susceptible to disagreement. A means of evaluating progress is important for MNR since it must report on progress on Condition 34 in both the yearly Provincial Annual Report on Forest Management and every five years in the State of the Forest Report, and eventually to the Ministry of the Environment.

**Recommendation 2: Corporate Ministry of Natural Resources must consider, in cooperation with Aboriginal representatives and the forest industry, the merits of developing measurable local level indicators and targets for the evaluation of progress with respect to Condition 34.**

Correspondence and meeting minutes clearly stated what the five First Nations involved on the Kenogami Forest were expecting from Condition 34. They were looking for opportunities related to capacity building, education, training and apprenticeship opportunities, summer student employment, job shadowing, opportunities in non-timber forest products, road construction, development of training programs and workshops, fire protection, tourism opportunities and partnerships. First Nations indicated that they currently cannot compete with larger, established operations and that the opportunity to bid does not mean they will be successful in receiving the contract.

The 2000 IFA recommended that MNR lead the development of a framework for implementing T&C 77. The action plan to address the recommendation referred to the sharing of the existing T&C 77 interpretation and guidelines document, referenced above, with industry and First Nations. The audit action plan status report, however, incorrectly stated that wording in T&C 77 is specific to *where opportunities exist.* Of the six potential areas of opportunity listed in T&C 77, only one (associated with facilitation of overlapping licence negotiations with exiting licensees) contains such a statement. In addition, the EA Board's decision did not limit opportunities to the six subject areas listed in T&C 77. MNR's interpretation and guideline document states that the EA Board *ordered MNR to build upon initiatives it is already pursuing, and to provide new opportunities for Aboriginal people to benefit from forest management activities in their areas.*

A draft report prepared by MNR in January 1999 titled, Nipigon District Status Report on Aboriginal Participation in and Benefits Achieved Through Forest Management[7] could be used to continue discussions leading to the development of a framework agreement with First Nations and Neenah Paper. If not already done, Aboriginal communities could undertake an employment, training and business needs assessment in relation to forestry to bring to the discussions. They may also be able to provide to MNR and the Company the number of people currently employed full time or seasonally in the forest industry, which would provide some basis against which to assess needs. A framework agreement with each Aboriginal community should also outline a strategic direction to meet goals.

### 3.2.4 Annual Work Schedules Public Inspection

The FMPM outlines the public inspection requirements for Annual Work Schedules (AWSs), aerial herbicide programs, insect pest management programs, and prescribed burns.

All of the required AWS public inspection notifications were made in accordance with the FMPM during the audit term. MNR and Neenah Paper records indicated that notices were published in five local newspapers at least 15 days prior to the commencement of forestry operations described in the AWS.

[7] MNR. 1999. Nipigon District Status Report on Aboriginal Participation in and Benefits Achieved Through Forest Management, Draft for Discussion Purposes. 15pp.

## 3.3 Forest Management Planning

### 3.3.1 Planning Team Activities

The planning team for the 2000-2005 Kenogami Forest FMP was established and approved by the District Manager as required by the FMPM and composition of the team was appropriate. Several members of GANRAC were members of the planning team. The planning team was chaired by a Registered Professional Forester. Regular reports of FMP progress were made to GANRAC by the Chair of the planning team.

Terms of Reference were developed and approved in a timely fashion and the roles and responsibilities of the planning team were clearly defined. Where additional expertise was required, the Terms of Reference indicated the names and responsibilities of individuals who would be involved (e.g. SGRs).

The Terms of Reference described task team responsibilities and membership. However, the audit team found no records of task team meetings or their outcomes. Since the development of specific parts of the FMP requires particular expertise, task team participation and input should be recorded to ensure that decisions become part of the public record. The audit team makes the following suggestion to resolve this inadequacy.

**Suggestion 6: Neenah Paper and the Ministry of Natural Resources should ensure, for the 2010-2020 Kenogami Forest forest management plan, that the planning team Terms of Reference include the recording of task team meetings, with attendance, concerns and resolutions.**

Records of Information Centres do not indicate attendance of planning team and GANRAC members although interviews indicated good participation by members of both groups. The 2004 FMPM requires attendance at Information Centres by members of planning teams and LCCs. The audit team makes the following suggestion to support this requirement.

**Suggestion 7: Neenah Paper and the Ministry of Natural Resources should ensure that attendance by planning team members and Geraldton Area Natural Resources Advisory Committee members at Information Centres is recorded.**

Public correspondence during plan development was recorded and responses to requests for information and to queries were appropriate and timely, including meetings and presentations when necessary.

### 3.3.2 Resource Stewardship Agreements

The requirement to develop Resource Stewardship Agreements first came into effect for 2003 FMPs, after the 2000-2005 Kenogami Forest FMP was prepared.

### 3.3.3 Sources of Direction

Forest management planning relies upon numerous sources of direction, including provincial legislation, MNR policy and guidelines, legal commitments, regional strategic direction, and local land use and resource management plans. MNR is responsible for identifying the relevant sources of direction to ensure forest management planning teams are aware of, and have access to these items. All of the relevant sources of direction were used in the preparation of the FMP. Planning team members indicated in interviews that MNR Region ensured planning teams received new information as it became available.

The FMP identified the silvicultural guides used in the development and implementation of the plan. The FMP also provided an extensive list of other associated manuals and guidelines that were to be used in the implementation of the plan.

### 3.3.4 Introduction

The 1996 FMPM states that the introduction to an FMP must include a brief description of how MNR's Statement of Environmental Values (SEV) under the Environmental Bill of Rights (EBR), as amended from time to time, was considered in the development of the plan, in the form of an SEV briefing note.

The introduction to the 2000-2005 Kenogami Forest FMP included a statement indicating that MNR's SEV was considered in the development of the plan. The SEV Briefing Note was prepared and signed by MNR and was presented in the Supplementary Documentation for the FMP.

### 3.3.5 Management Unit Description

The Management Unit Description in the 2000-2005 FMP provided an overall view of the geology, soils and sites occurring on the Kenogami Forest (Figure 5). The FMP describes the probable pre-settlement forest condition, based on the Strategic Forest Management Model (SFMM) "null run", which models growth and succession of the forest over time without the interventions of harvesting and fire suppression. Results from the "null run" indicated that the Forest was probably younger, contained a higher percentage of pure jack pine and had less balsam fir occurring as a component of many stands. The more recent decline in the presence of white spruce due to numerous spruce budworm infestations was also identified. The conclusions drawn about the past forest condition after examining the current forest condition and the SFMM "null" run, were found to be realistic and reasonable by the audit team. Silvicultural strategies were initiated in the 2000-2005 Kenogami Forest FMP to move the Forest closer to the pre-settlement forest condition.

Values maps used in the development of the 2000-2005 FMP were examined and found to be complete for planning in the areas of proposed operations. Values identified during the planning process through public information centres and MNR-conducted surveys were represented on the maps. The collection of values information for any Crown forest is an on-going process that is never really complete. Appendix M in the 2000-2005 FMP indicated where values information was incomplete or missing on the Kenogami Forest.

The 2000-2005 FMP used FRI that was compiled in 1993 and based on 1988 aerial photography. FRI production was a cooperative effort between Neenah Paper and MNR. Neenah Paper digitally updated the FRI to account for accruals and depletions for the period from 1988 to March 1997. The data base was frozen in 1998 for modelling purposes. Harvest area was forecast to March, 2000.

*Figure 5. View of Forest Taken During Site Visit.*

The current forest description was complete and met requirements. The FMP contained the necessary tables and detailed descriptions of:

- Area of managed Crown forest available for timber production;
- Landscape pattern and forest diversity indices;
- Habitat for selected wildlife species;
- Landscape processes.

The FMP included a socioeconomic profile as required. Although this profile was to be prepared by MNR and provided to the planning team, it was prepared by the plan author with background information provided by MNR in the form of a demographic profile dealing with wood flow on the Kenogami Forest. The situation was corrected for the 2005-2010 FMP where MNR provided the socioeconomic profile.

The socioeconomic profile included all sections as required by the FMPM and described the value that the forestry sector provides to the Nipigon District. The profile was clear and well-written but lacked basic information for the non-industrial users of the Forest. Much of the information necessary to meet requirements of the 1996 FMPM was not available. The requirement has changed considerably in the 2004 FMPM and now includes a summary by sector of non-industrial uses of the Forest.

### 3.3.6 Objectives and Strategies/Management Alternatives

Objectives and targets were included in the 2000-2005 FMP to address forest diversity, social and economic matters, provision of forest cover and silviculture as required by the CFSA and FMPM. The objectives adhered to principles expressed in provincial as well as local direction. Strategies were included to support objective achievement.

A comprehensive range of management alternatives was considered in the 2000-2005 FMP, including the three mandatory management alternatives required by the FMPM to determine the Kenogami Forest's theoretical timber production potential. Three additional alternatives were investigated that provided more balanced consideration for all objectives resulting in differing levels of objective achievement. All management alternatives were compared to a null hypothesis that represented how the Forest was expected to develop over time in the absence of human intervention (i.e. no harvesting, no renewal treatments, no fire suppression).

The range of management alternatives identified in the FMP addressed FMPM requirements and satisfied the planning team and GANRAC. GANRAC had requested an investigative scoping run that incorporated increased areas reserved from harvesting, primarily to represent increased remote tourism establishment buffers. This scenario was subsequently discussed and rejected as a viable management alternative.

The FMP management alternatives were analyzed through the use of SFMM, with results documented in the FMP for all alternatives. Electronic SFMM files were provided to the audit team for inspection and verification. The FMP provided good background information to the SFMM modelling inputs. Landbase changes late in the 2000-2005 FMP planning process, resulting from Ontario Living Legacy Land Use Strategy[8] (OLL), were incorporated into the strategic planning.

SFMM modelling for the 2000-2005 FMP was well structured and inputs generally used the best available information at the time of plan preparation. Some instances in the modelling were noted where improvements could be suggested. However, these particular areas were reviewed by the audit team in the 2005-2010 FMP modelling and revisions have already been incorporated (i.e. revised planning inventory, upper operability limits removed, some yield curve revisions, bypassed area not included as separate reserve area category, etc.) therefore no audit suggestion is warranted where improvements were considered satisfactory by the audit team.

SFMM yield curves in the 2000-2005 FMP averaged 140 $m^3$/ha in Term 1, much lower than those reported in the 1990-1995 RPFO (175 $m^3$/ha). These SFMM yield curve reductions seemed reasonable at the time, in recognition of recent mortality from spruce budworm infestation. However, the first two ARs for the 2000-2005 FMP revealed that actual volume recoveries were in fact

[8] MNR. 1999. Ontario Living Legacy Land Use Strategy. 136 pp + map.

significantly lower than forecasted. The 1995-2000 RPFO which was prepared and submitted in 2003, supported this observation with actual yields of 90 $m^3$/ha being realized (the total of all species harvested divided by the reported harvest and bypass depletions).

The planning team for the 2005-2010 FMP recognized that the forecast yields on the Kenogami Forest should be reduced even further, due to a number of contributing factors (17-year old FRI inventory, severe windstorm damage north of Nakina, budworm mortality, etc.). Yields were revised for the 2005-2010 FMP to an average of 114 $m^3$/ha, taking estimates for volumes left unharvested within harvest areas into consideration. The audit team is concerned that a discrepancy may still be realized between actual and forecast yields even after the 2005-2010 FMP volume reductions. The relevance of strategic planning is undermined if the forecast volumes from the modelling cannot be achieved operationally, therefore a suggestion regarding yield curve estimates is included in this report.

The 1990-1995 RPFO recommended that reserve areas associated with guideline implementation be analyzed for the 2000-2005 FMP. "Area Reserved From Harvesting" estimates were included in the 2000-2005 FMP, and SFMM projections exceeded the planned reserves by about 31%. In the 2005-2010 FMP, the estimated reserves in the strategic planning again exceeded the actual allocated reserved areas by 30%. Discussions with the Company and more recent ARs suggest that the strategic modelling assumptions appear valid, and the difference is actually closer to 6% if Table FMP-19 was to be updated to incorporate actual reserves to 2005. The audit team suggests that the reserve area percentages be reviewed and revised if appropriate for the 2010-2020 FMP based on recent management unit depletion information. A consistent approach must be maintained between the reserve area shown on depletion maps and the reserve area estimated in the strategic modelling.

**Suggestion 8: Neenah Paper should, during preparation of the 2010-2020 Forest Management Plan:**

**a) review and revise estimated yield curves and unharvested volume percentages;**

**b) revise estimated conversion of harvest area to non-forest for roads and landings;**

**c) review and revise areas reserved from harvesting as appropriate.**

The FMP provided an excellent discussion of the assessment of forest sustainability and objective achievement for all management alternatives. Strategic modelling evidence supported that the mandatory management alternatives were not considered to pass the test of forest sustainability due to unacceptable projections in forest unit areas through time. The three additional management alternatives analyzed by the planning team were considered sustainable. The assessment of long-term forest sustainability, objective achievement and spatial analysis supported the choice of the management alternative that balanced industrial and old growth needs as the Selected Management Alternative for implementation in the FMP. The documented available harvest area by forest unit was consistent with the outputs from the SFMM modelling and was accurately documented in the FMP text and tables.

The required examination of the results and analysis of SEIM was completed by the planning team and GANRAC.

The FMP text was very well written and included a good balance of technical information and concise wording that resulted in superior readability for a forest management plan document. The analysis of management alternatives was accurately documented.

Eligibility criteria for harvest, renewal, and tending were clearly stated in the FMP and were consistently applied in the strategic modelling.

Approximately 164 km of primary and secondary roads were planned for in the 2000-2005 FMP. They were uniformly well-documented and where alternative road corridors were not identified, a reasonable rationale was provided as to why

alternatives were not considered. Most often the reasons were:

- Topographic or OLL constraints (e.g. Wilgar Road) made alternative road locations unfeasible;
- The roads were planned and approved in the previous FMP and the consideration of alternatives was done there (e.g. Cavell Road, Geraldton Crossover Road, etc);
- No proposed primary road corridors impacted remote native communities.

The FMP provided a thorough description of wildlife species including endangered (i.e. bald eagle) and threatened (i.e. woodland caribou) and more common species such as moose, but could have provided a better description for habitat conditions for avian species. The FMP presented a management scenario for woodland caribou (the mosaic approach) and marten (the marten core areas approach) but only the caribou mosaic was required to be considered in the management alternatives analyzed by SFMM.

SFMM analysis of the preferred management alternative revealed that approximately 80% of the 17 wildlife species that are monitored in the planning process showed habitat declines over 100 years. Although these declines were within the bounds of natural variation for the SFL, the implications of these habitat declines at the ecoregional scale for these species were not assessed, as required by the FMPM.

**Recommendation 3: Corporate Ministry of Natural Resources must ensure that when a selected management alternative causes loss of habitat for a species in the context of the forest management unit, that the habitat implications are examined for that species at the ecoregional scale.**

There was only one silvicultural objective identified in the FMP and it was found to be very broad in scope and somewhat restrictive in exploring advances in new techniques. The objective was:

*To ensure the sustainability of the forest and improve forest growth and health with effective renewal and maintenance programs using available renewal funds and current silvicultural knowledge and technology.*

While this objective met the minimum requirements for a silvicultural objective, it did not speak to the conclusions drawn in the discussion on the past and current forest condition or the social benefits that could be realized through silvicultural activities. The objective as written did not promote and foster improvements in silvicultural treatments, nor did it consider alternative/additional sources of silvicultural funding. While many of these issues and concerns were recognized in the silvicultural strategies, they should be elevated to the level of a plan objective, so that more specific and detailed strategies can be identified.

**Suggestion 9: Neenah Paper should expand its silvicultural objectives in the 2010-2020 Kenogami Forest forest management plan to:**

**a) consider past and current forest condition;**
**b) consider the potential for its silvicultural program to provide local economic benefits;**
**c) seek additional sources of silvicultural funding;**
**d) promote new technological advancements;**
**e) consider current and potential mill requirements.**

### 3.3.7 Operational Planning

#### AOC Planning

Within areas selected for forest management operations, identified values are afforded protection through the implementation of prescriptions that are applied to defined geographic areas surrounding or adjacent to the identified value. These areas and their associated prescriptions are called Areas of Concern (AOCs).

AOC planning begins with the timely identification of values prior to planning. The collection of values information is MNR's responsibility. New values are entered into the Natural Resource Values Information System (NRVIS), which MNR maintains. Values maps are then produced which

are used to ensure that forest management activities are planned to minimize potential adverse impacts to these values.

The best time to collect information on values is during plan development. MNR did not have adequate resources to enable values surveying in the areas likely to be affected by forest management activities for the 2000-2005 FMP. The collection of more values information on caribou habitat, stream classification, fish habitat and cultural heritage values was a recommendation in the 2000 IFA. MNR, as part of the action plan to address this recommendation, provided funding for collection of information on caribou wintering areas and stick nests during the implementation of the 2000-2005 FMP. These surveys were focussed on areas yet to be operated in the 2000-2005 FMP. That meant that two or more years of operations had occurred already without, for instance, recent stick nest surveys on those areas of operation.

The 2000 IFA reported that many nest sites were reported by industry during the course of conducting operations. There was evidence of this during this audit as well (e.g. the eagle and osprey nest sites at field site 32 and the osprey nest site at field site 30 ( Figure 6).

Neenah Paper's 2010-2020 FMP will cover ten years of forest management activity (with two, five-year operational plans) and roughly twice the area of past five-year plans. Given these challenges, collection of values information in areas of probable operations should not be delayed.

**Recommendation 4: The Ministry of Natural Resources must ensure that adequate resources are made available for the collection of values information in preparation for the 2010-2020 Kenogami Forest forest management plan.**

*Figure 6. Osprey Nest on the Kenogami Forest.*

The audit team noted that no record of where recent nest site surveys were conducted could be produced. Apparently the maps used during the surveys are not retained after information on nest sites is recovered. The MNR Biologist indicated that he wanted to save survey route information in the NRVIS data base for future reference but it was not technically possible to scan the survey maps into NRVIS. Irrespective of how it is done, it is the audit team's opinion that it is critical to ensure that records of where and when values surveys have taken place are kept. With planning timeframes now twice as long as in the past it is important that survey records are kept to ensure time-sensitive value survey resources are used effectively.

**Recommendation 5: The Ministry of Natural Resources must ensure that accurate map records, including the dates and locations of aerial values surveys, are maintained.**

Once new values are identified they must be entered into the NRVIS data base to ensure that MNR's values map is up-to-date for planning purposes. The audit team checked a number of new values identified by MNR (nest sites), industry (nest sites) and the public (during a public information centre; an outpost camp and a nest site) and determined all the values were properly stored in the electronic data base. The audit team learned that years of survey information on woodland caribou winter habitat and calving areas was not entered into NRVIS because provincial data standards were not finalized. It would seem prudent for MNR to finalize the data standards and enter these data as soon as possible to ensure these values are properly addressed through the AOC planning process and to make data provincially available for use in the woodland caribou recovery strategy.

**Recommendation 6: The Ministry of Natural Resources must make every effort to finalize woodland caribou values information data standards to allow these data to be entered into the Natural Resources Values Information System.**

The collection of native values information was identified in the 2000 IFA as an area where MNR (local and corporate) needed improvement. It was their recommendation that *MNR, in cooperation with First Nations Organizations, develop a consistent methodology and provide adequate resources for the collection of native cultural values.* MNR district staff, through consultants working directly with the five First Nations communities, appeared to have developed a method for collecting native values in a way that was effective and comfortable for the communities. MNR provided $60,000 for values collection to the Matawa First Nations Management Group to coordinate among the five First Nation communities, although this amount was only a portion of the original amount requested by the Management Group. Unfortunately, although the consulting effort appears to have been successful in acquiring native values information, the information resides with the consultant and native communities may now be unwilling to release the information.

**Suggestion 10: The Ministry of Natural Resources should continue efforts to secure the native values information already collected through consultants for four First Nations communities, once the communities verify the mapped information produced and are comfortable with its release.**

Where guidelines provided specific direction for protection of values which could be affected by forest management activities, appropriate prescriptions were developed based on guideline direction (e.g. a 120 m shoreline reserve on a moose aquatic feeding area). Where specific direction for protection of a value was not included in a guideline (e.g. shoreline buffers to protect aesthetic concerns on waterways used by tourist outfitters) prescriptions were developed by the planning team to meet site conditions and tourist operator concerns specific to that waterway (Figure 7). Tertiary road restrictions to deal with tourism concerns were also found in the prescriptions.

*Figure 7. Riparian Reserve Adjacent to Harvest Block.*

Seven AOC prescriptions were listed as exceptions, all on bald eagle nests. These prescriptions were exceptions to the bald eagle guidelines[9] because they allowed for harvesting activities within the 400m to 800m tertiary zone. Insofar as operations are permissible in this zone (outside the critical breeding period) if they are out of line of sight of the nest, these approved exceptions (with attendant monitoring programs) were reasonable.

**Silviculture**

The 2000-2005 Kenogami Forest FMP provided a thorough description and explanation for the forest units selected. While white spruce stands, which are rare on the Forest, were not identified as a separate forest unit (because they seldom occur in pure stands), the FMP discussed the effort to maintain this species on the landscape through the practise of mixing white and black spruce seedlings in plantations.

The FMP discussed in detail each forest unit and what silvicultural treatments would be used to manage and regenerate these areas. The discussion included a good practical explanation on when and how different silvicultural intensities would be utilized (intensive, basic and extensive treatments). For example:

*For the harvest of white birch stands (which is currently under-utilized) – smaller patches of pure white birch will be left un-harvested. In areas where harvest does occur, 19% of the area is planned to be converted through planting to a more mixed-wood condition. In the remaining 81% of the area there will be a sufficient number of stems harvested to promote natural white birch regeneration.*

The description of how each forest unit would be treated silviculturally also identified historical treatments, which was found by the audit team to be helpful in identifying improvements made by the Company.

Neenah Paper developed a computer-modelling tool to assist in prescribing Silvicultural Treatment Packages (STPs), for each individual stand

9 MNR. 1987. Bald Eagle Habitat Management Guidelines. 12 pp + Appendices.

proposed for allocation. The tool, named Harvest and Renewal Algorithm (HARAM), is well thought out and based upon the practical experience of the staff. HARAM assists in better projections of silvicultural treatments through the consideration of such stand attributes as: ecosite type, species composition, working group and forest unit. To ensure sustainability, the FMP documented that a separate modelling run was made to ensure there were no significant differences in silvicultural intensities between SFMM and the outputs of HARAM.

Silvicultural Ground Rules (SGRs), based upon the Provincial Silvicultural Guides, were developed by Neenah Paper. These SGRs identified all of the possible silvicultural treatment options that could be utilized to regenerate the Forest. The SGRs also identified minimum targets such as acceptable species, height and stocking for each treatment option. These targets were used to determine which areas could be considered successfully regenerated and Free-to-Grow (FTG). The audit team found the targets to be reasonable and reflect site conditions found on the Forest.

The Forest Operation Prescriptions (FOPs) identified in the FMP and subsequent AWS harvesting and silvicultural stand lists conformed to the requirements of the FMPM. For each stand allocated for harvest or scheduled for renewal, the FOPs identified the original forest unit, the method of harvest, the Silvicultural Treatment Package (STP) and the desired future forest unit.

It was also noted that all SGRs and STPs in the FMP, stated that *merchantable stems of Bw, Po, Ce and La may be left standing, felled or otherwise left unutilized.* While it is recognized that there are no markets for balsam poplar currently available, and limited markets for cedar and larch, stands of trembling aspen should not be harvested at all if there are no markets for the trembling aspen. The fluctuating market for aspen is described in the Utilization Section of the FMP. This section identified that stands of aspen may be bypassed, however it did not identify that aspen stands would be harvested for only their conifer content, as happened in the past. In fact this section stated that *very little poplar has been listed in the tables as unutilized, based on the probability that the market will improve.*

**Recommendation 7: Neenah Paper must ensure that the silvicultural ground rules in the 2010-2020 Kenogami Forest forest management plan do not allow for aspen poplar to be left unutilized in aspen-dominated stands.**

The FMP identified the need for full-tree logging on shallow sites and described this practice as an exception to the silvicultural guides. The FMP discussed the monitoring program that will be implemented by Neenah Paper for areas harvested under this exception. It also identified the need to separately track harvesting impacts on hardwood and conifer sites.

As a silvicultural strategy, the FMP identified that *staff are to keep abreast of the latest developments in their field and continuously be attempting new methods, techniques and equipment.* Silvicultural practices were being updated to reflect silvicultural advances. This practice was evident in the FMP and examples viewed in the field by the audit team include:

- A change from aerial seeding jack pine to Bracke seeding – this advancement has significantly reduced the amount of jack pine seed required and reduced the need for pre-commercial thinning.
- A change from bareroot tree seedlings to container stock – bareroot stock availability is limited and container stock costs less to produce and plant. Also, finding experienced tree planters familiar with planting bare root stock is becoming more difficult.
- Nutrient loading of container stock – recent studies have shown the benefits of nutrient loading of container stock before planting – some of the stock ordered in 2005 for the 2006 plant will have increased fertilizer applications just prior to cold storage.
- Piling and burning logging slash during winter operations – access to winter harvested areas causes difficulty for the piling and burning of slash the following year. Burning slash in February/March has been successfully carried out on a trial basis and will be considered again in the future.

- A change from fixed wing aircraft to helicopters for aerial herbicide applications has allowed for smaller site-specific herbicide applications, more flexibility in varying herbicide application rates and has reduced the need to construct and maintain airstrips.
- Increased use of Geographic Positioning System (GPS) technology to map aerial and ground herbicide applications, project boundaries etc.

The FMP identified planned silvicultural activities for the five-year term. The total area planned to be renewed was identified as 61,342 ha which compares to the forecasted harvest area of 66,739 ha (including salvage) or 92% of the planned harvest. The difference between the area of planned harvest and the planned area of renewal can be explained by the area lost to roads and landings and the fact that the forecast also covers approximately two years of silvicultural work required to regenerate areas harvested in the previous term.

Silvicultural expenditures were projected to be $32,568,500 (based upon the Company's HARAM decision support tool), which basically matches revenues to the renewal trust fund of $32,609,062. It was also noted in the text that renewal rates will be examined to ensure that there are sufficient revenues to complete the renewal plan. A forecast of revenues and expenditures was prepared based on planned harvest levels and regeneration activities using rates contained in the 1999 Ontario Stumpage Matrix. Revenues were projected to be adequate to meet the planned renewal program. In addition, Crown revenues were forecast at approximately $51 million and contributions to Forestry Futures Trust Fund were approximately $3.8 million.

It was observed that Neenah Paper included numerous expenses under the category of silvicultural support in Table FMP-27 (Table FMP-24 under the 2004 FMPM), including overhead costs, seed collection and extraction, stock production, silvicultural surveys, and the chemicals used for tending. While the reporting of these various costs as silvicultural support conforms to the requirements of the FMPM, it does not provide much insight into where the Company is focusing its efforts, nor does it match the annual reporting requirements the Company has to identify on the final invoices to the Forest Renewal Trust.

**Suggestion 11: Forest Management Branch of the Ministry of Natural Resources should consider revising the requirements for reporting silvicultural expenditures in Table FMP-24, to match the requirements for reporting silvicultural expenditures to the Forest Renewal Trust.**

**Roads**

The development of access through primary and secondary road construction proposed in the FMP was consistent with plan objectives and development of the Forest over time (Figure 8).

*Figure 8. Example of a Main Gravel Road.*

Road planning was well done although lack of some values information (see AOC Planning Section above) necessitated monitoring programs for stick nests that were discovered during road construction (e.g. Skerrett L. Block). Consideration of alternative road corridors in the 2000-2005 FMP was often negated because the road had been planned in the last FMP, approved but not built, or the proposed location was the only practical location for the road because of constraining topography, OLL areas etc. Reasons for the chosen road location were well documented in the FMP. Where alternative road locations were considered (e.g. the Florrie Road extension) the rationale for the proposed road location was documented. No public comments were received regarding primary and secondary road locations except from a trapper concerning the location of the Watini secondary road, which was close to his cabin. The concerns were resolved.

**Harvest**

Selection criteria for harvest, renewal, and tending operations were clearly identified and consistent with the areas eligible for operations. Areas selected for harvest operations had to meet three mandatory criteria. An additional 20 criteria were used to select preferred areas for harvest. No specific weights were given to each of the 20 criteria. However, socioeconomic considerations such as a balance of industrial needs were a primary focus of the planning team. These included the need to preserve a number of commuter centres and balance commuter distances.

Planned harvest areas exceeded the AHA by 0.5%. With some minor differences, areas selected were consistent with the AHA. Variations within forest units were generally less than 3%. The "Other Conifers" forest unit (cedar and larch) was intentionally over-allocated by 11.1 % (102 ha) to provide opportunities for small scale entrepreneurs. Any differences in age class by forest unit were due to emphasis placed on socioeconomic harvest selection criteria.

Contingency areas were identified and represented about 19% of the planned harvest area. The areas were spread across all forest units and included upland and lowland harvest blocks. Most of the harvest selection criteria were considered in the selection of contingency areas. Approximately 1,000 ha of contingency area was used as a replacement harvest area that became salvage.

Neenah Paper takes issue with the way in which salvage opportunities are offered under Forest Accord Article 11. Opportunity 1 (salvage cuts in low volume or quality stands that are not currently harvested) under Forest Accord Article 11 is currently under review by a joint MNR and forest industry task team. There has been very little uptake by industry for Opportunity 1 or Opportunity 2 (thinning) since Forest Accord implementation in 2000. A draft report was produced identifying the barriers and outlining solutions. Currently there are no proposed changes in the revised draft report regarding harvest areas under Opportunity 1 as part of the AHA. If the AHA is calculated using areas that would qualify for Opportunity 1, then area harvested under Opportunity 1 should count as part of the AHA.

The draft Forest Accord Article 11 report does not identify any predefined sample intensity. In fact the guiding document suggests a sampling intensity of one plot per ten ha. The size or type of plots is not prescribed. Under the implementation of the new draft report, MNR and industry staff will jointly develop and agree upon the methodology to be used to identify and verify stands qualifying for low volume Opportunity 1. This change should satisfy Neenah Paper's concerns regarding high sampling intensity.

**Suggestion 12: Neenah Paper, with assistance from the Ministry of Natural Resources, should review the sampling and methodology requirements to determine stand eligibility under Opportunity 1 of Article 11 of the Forest Accord, and proceed with harvest operations where appropriate.**

### 3.3.8 Plan Review, Approval

The Forest Management Plan was prepared in accordance with the approved timing schedule and the process for approval and amendments adhered to the FMPM requirements. The audit team confirmed the necessary signature approvals of the R.P.F. Plan Author, the District Manager and the

Regional Director and the inclusion of the required FMP plan contributors' page.

### 3.3.9 Plan Amendments

The 2000-2005 Kenogami Forest FMP contained no major amendments, three minor amendments and 110 administrative amendments. All amendments were described in the List of Amendments and were approved by the District Manager and recorded in the Master Lists. GANRAC has endorsed a pre-approved list of amendment requests that can be classified as "administrative" without its prior review. This endorsement applies only to specific forest management activities and has facilitated the timely review and approval of many requests. Other amendment requests, less routine in nature, were reviewed by GANRAC and recommended for classification as administrative or minor.

The 1996 FMPM described specific conditions respecting the preparation and certification of amendments. These conditions require that amendments be prepared by a Registered Professional Forester and certified by the plan author. Many of the amendments submitted during the period of the audit were not certified. The 2004 FMPM specifies similar conditions for the submission of an amendment, requiring that each amendment be certified by the plan author.

**Recommendation 8: Neenah Paper must ensure that all forest management plan amendment submissions are certified by the forest management plan author.**

At first glance the number of administrative amendments appears high. Closer examination of the types of amendments revealed that a majority are related to corrections to the FMP that were required when actual conditions were encountered in the field (e.g.: changes in the location of stick nests and streams, better location of a road corridor due to terrain constraints). With more than 60,000 ha having been harvested during the period, the number of administrative amendments reflects operational realities and is not indicative of poor planning.

The FMPM requires copies of major and minor amendments to be distributed to all locations where official/approved copies of the FMP reside as soon as they are approved, and copies of administrative amendments to be distributed once a year. Although no cover letters were used or filed, MNR staff reported during interviews that amendments were circulated annually to the Region, Forest Management Branch, Toronto and the Ontario Ministry of the Environment.

### 3.3.10 Contingency Plans

There were no contingency plans developed during the audit term.

### 3.3.11 Annual Work Schedules

The Annual Work Schedules (AWSs) were complete and consistent with the planned operations in the FMP. Revisions were processed and documented. New values data was being supplied by Neenah Paper to MNR as per the requirements of the 2004 FMPM. A number of blocks viewed during the field audit were checked against the AWSs and the FMP. No discrepancies were found.

Prescribed burn plans were comprehensive and complete. Generic aerial spray plans were part of the AWS and with two exceptions were complete. The technical name and formulation of the pesticide was not included in the text of the aerial herbicide spray plan. The aerial spray plan did not contain a description of the forest area to be treated. Both of these are requirements of the FMPM. These omissions occurred in at least three of the five years of the audit period.

**Recommendation 9: Neenah Paper must include the name and formulation of the pesticide and a description of the forest area in the text of the aerial spray plan.**

## 3.4 Plan Implementation

### 3.4.1 Areas of Concern

The audit team observed a representative sample of AOC prescriptions including ones to protect moose aquatic feeding areas (MAFAs), water quality and fish habitat on warm and coldwater streams and lakes, tourism values, eagle nests, etc. (Figure 9). AOC prescriptions followed specific direction within a guideline where that was available (e.g. Timber Management Guidelines for

*Figure 9. Eagle Nest in a Trembling Aspen.*

the Protection of Fish Habitat). Where the planning team needed to devise a prescription that would protect a value in cases where specific direction was not available in a guideline (e.g. maintenance of aesthetic values proximate to tourism values such as canoe route rivers) the audit team's opinion was that the value was adequately protected and the prescription was appropriate for the site conditions encountered.

The audit team encountered situations where a value was recognized in the planning process, was potentially adversely affected by forest management activity and was protected by leaving strips of unallocated, harvestable forest thus avoiding the AOC planning process. An example was field site 4 (Watusee) where a 400m x 1,000m strip was left unallocated within a harvest block in order to provide protection to a trapper's cabin and trail. The audit team believes that the prescription negotiated between the trapper and Neenah Paper was more than adequate to protect the values identified but is concerned that the unallocated strip of timber was not identified in the FMP as the means by which the trapper's values were being protected. Since it was not identified as an AOC, the strip of timber could be allocated in the next FMP.

**Recommendation 10: Neenah Paper and the Ministry of Natural Resources must ensure that values which are identified through the forest management planning process are protected through the Area of Concern planning process and documented in the forest management plan.**

The audit team observed that prescriptions were carried out as planned or modifications were covered by an amendment or compliance report detailing the difference from the planned prescription. An exception to this was a 0.2 ha incursion into a 120 m MAFA the audit team noted from the air at field site 26. The incursion was not reported as an infraction or covered by an amendment. Upon investigation it appears that a poor quality satellite image of the harvested area used to check cut boundary compliance resulted in the incursion being missed. Better quality supplementary aerial photography now used should minimize the chances of a recurrence of this problem. Although ground inspections were frequently conducted, the incursion was missed there too.

**Suggestion 13: Neenah Paper should ensure that the field application of all Area of Concern prescriptions are verified where the quality or resolution of supplementary aerial photography does not allow accurate assessment of harvest boundaries.**

### 3.4.2 Harvest

Harvest operations must be conducted in compliance with all current laws and regulations including the CFSA, and the approved activities of the FMP and AWS. For the purposes of the field audit Neenah Paper prepared a set of background information for each block in the audit team's field sample included maps, FOP, location of roads, AOC, and forest operations inspection reports (FOIR). The audit team viewed a number of sites where harvest operations occurred during the audit period. Harvest activities were appropriate for the site conditions.

There were no mandatory standards for site damage in the FMP/AWS and there were no reported incidents of non-compliances for site damage during the audit period. One incident of moderate site damage was found during the field visits. This was correctly reported and described on the Company inspection report as In-Compliance-With-Comments (ICWC). The audit team concurred with the report.

Utilization issues and marketability were addressed in the FMP. The lack of markets for cedar, larch, non-veneer quality white birch, and in some instances poplar, was discussed. These species were shown in Table FMP-23 as not being fully utilized.

The FMP also allowed for merchandizing tree length stems to meet market specifications. In these instances it stated that MNR must be notified. During the first year of the audit period (2000/2001) there was high demand for poplar veneer quality material, but limited markets for other poplar products. As a result of this market situation, MNR authorized the merchandizing of poplar at the harvest site for one overlapping licensee in an attempt to maintain wood supply at a poplar veneer mill in Longlac. Only poplar veneer was hauled at this time. A large portion of the poplar remaining on site was hauled over the following two years. However, an undetermined volume of poplar was left at the harvest site. This was mostly winter harvest area that could not be accessed. There was no attempt to estimate the volume left on site nor was there any documentation on FOIRs. Documentation of volumes and reporting under the Forest Operations Inspection Program are mandatory requirements as a result of a joint MNR/forest industry report dealing with utilization issues[10]. MNR stated it is unlikely the merchandizing of poplar will be approved in the future. The audit team agrees that this is an undesirable practice.

**Recommendation 11: The Ministry of Natural Resources must ensure that proper documentation and inspection reporting, as well as all procedures in the report Towards Resolving Utilization Issues, "A Process to Manage Unutilized Fibre" are followed if wood is to be merchandized at the harvest site.**

The audit team observed a number of instances where utilization practices were not acceptable. There were five field sites on the audit where greater than 100 pieces of merchantable conifer tree lengths or processed logs in 2.5 metre or 5.1 metre lengths were noted. As well poplar long butts, large tops, or tree lengths were found at four field sites. An example is shown in Figure 10.

*Figure 10. Unutilized Wood at Roadside.*

[10] MNR/Industry Utilization Task Team. 1999. Towards Resolving Utilization Issues "A Process to Manage Unutilized Fibre".

Lower yields and other factors resulted in some wood supply commitments not being fulfilled. Poor utilization practices, even on a limited scale exacerbate wood supply shortages and leave the perception that industry is doing a poor job of managing the available wood supply. In addition there are legal requirements and compliance issues if wasteful practices are committed by leaving merchantable wood on site. It is a condition of the SFL and overlapping licences that wasteful practice standards be followed. There is also some loss of Crown revenue and Forest Renewal Trust revenue as this wood is not scaled for Crown stumpage. A more cooperative effort by all parties is required to ensure all merchantable wood is utilized and explore market potential where insufficient markets exist. This could include increasing the use of unmarketable species for corduroy and advertising to other forest products companies in the region that wood is available. The processes identified in the joint MNR/forest industry report[11] should be followed.

**Recommendation 12: Neenah Paper and overlapping licensees must:**

**a) ensure all marketable wood is utilized;**
**b) work cooperatively to minimize any wastage of fibre;**
**c) make best use of species deemed as unmarketable in the forest management plan;**
**d) ensure the procedures/processes in the report Towards Resolving Utilization Issues, "A Process to Manage Unutilized Fibre" are followed for wood deemed as unmarketable;**
**e) ensure that utilization is accurately reported on forest operations inspection reports.**

### 3.4.3 Renewal

No gaps between the planned and actual levels of each type of renewal treatment (other than prescribed burning) were evident during the audit.

The fifth year AR was not available at the time this audit was conducted as ARs for 2004-2005 are to be submitted by November 15, 2005. However, the Comparison and Trend Analysis of Planned versus Actual Forest Operations (TAR) summarized silvicultural accomplishments as follows:

- **Even-Aged Natural Regeneration – 16,968 ha** planned - 18,325 ha actual or 108% of planned;
- **Even Aged Artificial Regeneration – 46,408 ha planned – 37,079 ha actual or 80% of** planned;
- Total Even-Aged Regeneration - 63,376 ha **planned – 55,403 ha actual or 87% of** planned.

While it is not possible at this time to compare actual regeneration activities with actual harvest levels, it was noted in the field that silvicultural work was closely following the harvest. For example, field site 40 was harvested between 2000 and 2004 and silvicultural work in the Block started in 2002 with site preparation followed by tree planting in 2003. Site preparation was also continued in 2003 and planting continued in 2004.

Results from the field site visits showed that:

- All SGRs applied on the sites visited were consistent with the FMP;
- All prescriptions were approved in each AWS for each site visited;
- All treatments applied on the sites viewed were consistent with the approved FOPs;
- All prescriptions applied were appropriate for the sites;
- All activities were accurately mapped and reported in the ARs;
- The vast majority of treatments applied were effective on the sites visited;
- A few sites where the treatments were not effective included;
    - Small patches where heavy grass and shrub conditions resulted in the loss of planted stock;
    - Areas where thick duff reduced the effectiveness of the Bracke site preparation.

One concern, observed at almost every field site, was the fact that only the areas behind the slash piles were being treated. This resulted in an approximately 15-20 m wide area on both sides of the road receiving no treatment, which over time

[11] Ibid 10.

*Figure 11. Productive Area Occupied by Slash Along a Winter Road.*

can add up to a considerable amount of area (estimated at 3-4% of the productive forest land) (Figure 11).

While it was explained that these areas will be treated after the slash was piled and burned (usually through site preparation and planting), progress to do so should be monitored by MNR and future Independent Forest Audits. It was also noted at several field sites that some tertiary roads (especially in the winter harvest areas), could have been site prepared and planted.

**Recommendation 13: Neenah Paper must:**
- **a) monitor the area left untreated along roads and ensure they are treated;**
- **b) regenerate tertiary roads whenever possible;**
- **c) reflect any associated losses to the productive forest landbase in the forest management plan.**

Of the 40 field sites viewed from the ground and air with site-preparation, there were no incidents of excessive rutting or site damage as a result of this activity. Neenah Paper uses a Donaren disc trencher and a Bracke patch scarifier to mechanically site prepare areas. In general, site preparation was applied to sites with stable deeper soils (sandy and till soils). Organic sites were either left to regenerate naturally or planted without site preparation. Shallow rocky sites were left to regenerate naturally or were planted without site preparation. Field site 9 included an area that was winter shear bladed to align the heavy slash and expose plantable sites. This area was treated in the winter shortly after harvest and was on a heavy clay site. The treatment was very effective and no rutting or site damage was observed.

It was also noted at many of the site visits that there were many small patches where plantations were established and the areas between these plantations were regenerating naturally to good stands of poplar. An increase in the use of manual ground chemical application is going to be required to avoid spraying these pockets of poplar, as many of these areas are too small even for helicopter applications.

**Suggestion 14: Neenah Paper should consider:**
**a) increasing the use of ground herbicide applications and/or manual tending, and**
**b) cleaning and thinning older plantations (15-25 years old).**

One FTG stand was a mixture of poplar, birch, natural jack pine and planted black spruce. While this stand was FTG, a cleaning of the stand (mainly removing the white birch and thinning the other species) would allow the stand to continue to grow at its excellent growth rate (leaders on the spruce averaged 45 cm in length). Also a number of other areas with similar conditions were observed between field sites.

### 3.4.4 Tending and Protection

Observations from the field audit showed that:

- All tending activities sampled in the field were consistent with the FMP and SGRs. An example of tending in aspen is provided in Figure 12;
- All herbicide applications sampled in the field had the required buffers in place;
- No insecticide activities occurred;
- All activities sampled where herbicide was used, were found to be appropriate and effective;
- Detailed monitoring and field verification conducted by Neenah Paper confirmed the need for the herbicide application;
- While Neenah Paper uses only Vision, (except for one experimental area), the application rates were adjusted to meet the specific requirements for each project;
- All projects sampled were accurately mapped and recorded in Neenah Paper's silvicultural record keeping system used to prepare the ARs;
- Information used in the ARs was provided by Neenah Paper's Geographic Information System (GIS).

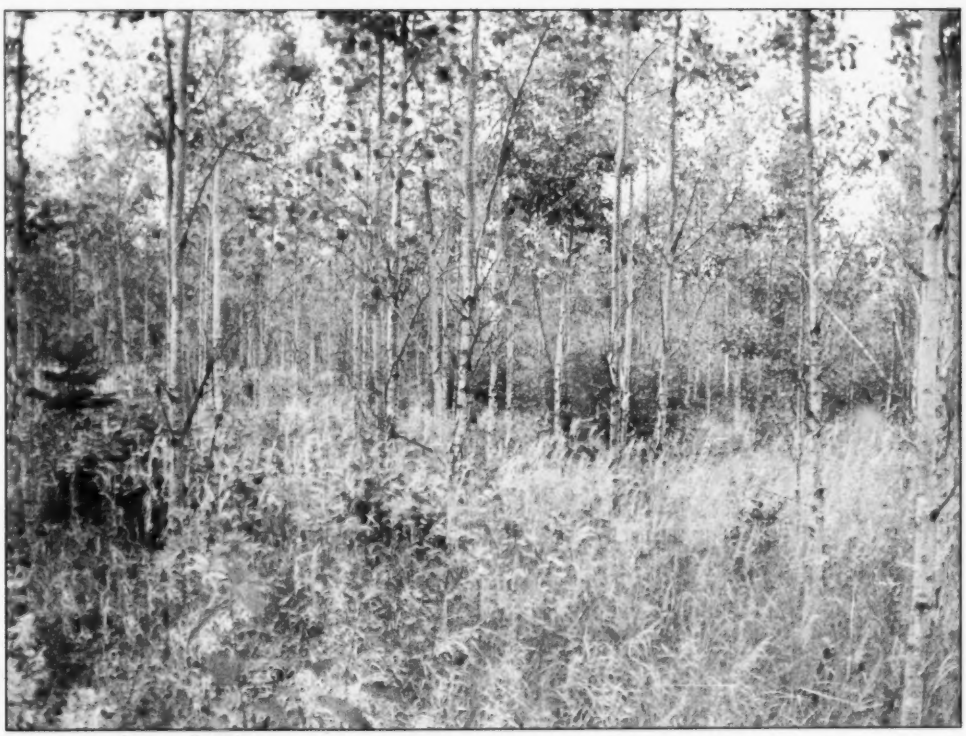


*Figure 12. Aspen Spacing.*

### 3.4.5 Renewal Support

Prescribed burns were identified for areas with a high balsam fir component as a way of helping reduce the increase of balsam fir on the Forest. While ten blocks were originally identified in the FMP for prescribe burning, only two were able to be carried out. Factors noted by Neenah Paper that limit the practical application of prescribed burning include:

- Very limited timing window – PBs can only be conducted during the last week in August to approximately the first two weeks of September;
- Area requirements – presence of natural fire breaks etc.;
- Wildlife considerations – such as eagles nests;
- Planning requirements are burdensome and are expensive.

Two factors that assisted in completing the two prescribed burns were the availability of Forestry Futures Trust Funding and the strong local support from MNR's Fire organization in Geraldton.

While the field sites did not include any visits to tree growers or tree improvement areas, the quality of the nursery stock and its performance in the field was observed to be outstanding. Many of the plantations exhibited leaders over 30 cm in length and had strong sturdy stems, which greatly assisted in competing with grass and herbaceous competition.

**Best Practice 1: Neenah Paper is commended on the high quality of its planting stock.**

### 3.4.6 Access

The audit team sampled access activities for primary, secondary and tertiary roads (e.g. road construction, road maintenance, winter water crossings, culverts, bridges) from those areas where activities were conducted during the five-year period of the audit. All road building activities were as planned or were covered by a plan amendment. Access activities were often the subject of compliance inspections but seldom the subject of a non-compliance report.

All types of water crossings inspected by the audit team were generally well done. Appropriate culvert lengths meant slope stabilization was easier to achieve and this process was aided by the use of shot rock rip-rap around and adjacent to the culvert. Further up the slope from the culvert Neenah Paper was experimenting with woven straw mats impregnated with grass seed. The results of this approach observed by the audit team varied from adequate to very good in terms of establishing vegetative cover on the upper reaches of the slopes. Unfortunately, the mesh used to hold the mat together can entangle small amphibians and snakes and so its use has been discontinued. A larger mesh burlap material is now being considered for this application.

Culverts were often not embedded into the streambeds, a deficiency that led to a recommendation in the 2000 IFA.

While embedding of culverts is a good practice it is not a requirement; however, culverts must allow for the free passage of fish and water (Figure 13). The audit team also noted that right-of-way widths often exceeded 20 m and excessive grubbing sometimes occurred within 100 m of AOCs established along waterways.

**Recommendation 14: Neenah Paper must ensure that operations comply with the standards and guidelines of the Environmental Guidelines for Access Roads and Water Crossings[12] and ensure that:**

**a) culverts are placed to ensure the free movement of fish and water;**
**b) grubbing is kept to an absolute minimum within 100 m of an Area of Concern water crossing;**
**c) right-of-way widths through Areas of Concern at water crossings are no wider than prescribed in the forest management plan.**

[12] MNR. 1990. Environmental Guidelines for Access Roads and Water Crossings. 65 pp.

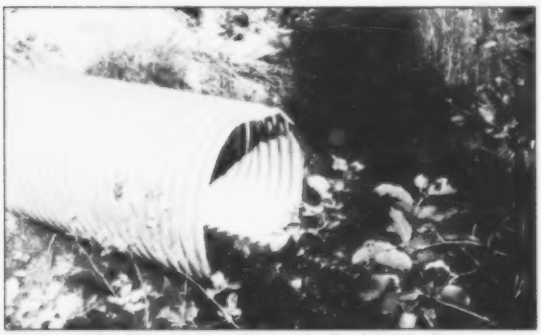


*Figure 13. Culvert not Properly Embedded in Stream Bed.*

Winter water crossings examined by the audit team were well done with no perceptible disturbance of the riparian vegetation or streambeds.

Portable bridges were frequently used and most often the installations were excellent with little to no disturbance of stream-side vegetation, good abutment construction, good use of filter cloth and "wing" logs to prevent sediment from getting into the water. However, much of this good work on two portable bridges examined by the audit team as impaired when grader operators graded gravel and silt onto the portable bridge surface allowing it then to wash into the stream from the bridge surface (Figure 14).

**Suggestion 15: Neenah Paper should ensure that road building material (i.e. gravel and sand) is not graded onto the surface of bridges.**

The audit team examined Category 9 and 14 gravel pits. Category 9 pit boundary markings were infrequent and faded or non-existent since many were seven to eight years old. Without clearly marked pit boundaries, operators cannot determine the 15 m setback distance required between the working face of the pit and the pit boundary.

**Recommendation 15: Neenah Paper must re-establish boundaries for active Category 9 aggregate pits where the boundaries are no longer easily observed.**

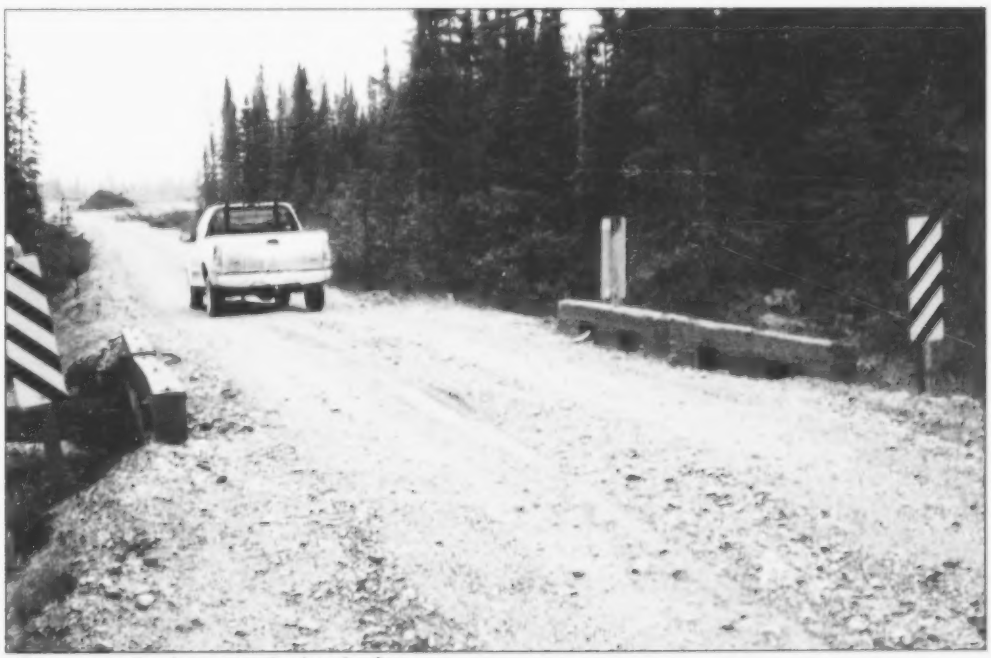


*Figure 14. Grading onto Bridge Surface.*

## 3.5 System Support

### 3.5.1 Human Resources

Effective communication amongst individuals involved in forest management is crucial to ensuring operations are conducted in accordance with the approved FMP. The audit team observed an effective communication system in place on the Kenogami Forest, in terms of communication amongst Neenah Paper staff and contractors. Inter-organizational communication between Neenah Paper and MNR was particularly effective.

Employees must be well trained to ensure they are aware of current, relevant legislation, industry and government regulatory requirements and standards, and the organization's policies and objectives. Interaction with Neenah Paper and MNR employees during the site visit indicated that both organizations have implemented specific training for employees that is appropriate to the work that they may be involved in. The audit team observed a good relationship between training, education and individual responsibilities. During interviews, both Neenah Paper and MNR staff expressed satisfaction with both the amount and quality of training available.

Training needs and records for MNR staff were documented in individual annual performance review files. Training needs for Neenah Paper employees were reviewed annually through the Safety, Management and Assessment Rating Tool (SMART) program. Neenah Paper has recently introduced an effective electronic data base system for storing and accessing individual training records.

### 3.5.2 Documentation and Quality Control

MNR and Neenah Paper documents were well organized and easily obtained. The silvicultural record keeping by Neenah Paper was exemplary. All silvicultural activities were mapped using the Company's GIS and the maps were found to be very accurate for all the field sites. GPS technology is being increasingly used by field staff for fieldwork and mapping projects.

Neenah Paper tried using satellite imagery to map harvest areas and subsequent silvicultural work, however the technology was found to be not as effective as they wished and the Company has recently reverted back to colour supplementary aerial photography, which provides better quality images (especially for aerial herbicide spray operations).

In addition to their GIS records, Neenah Paper still uses silvicultural project cards to record activities. These records date back over 40 years and are stored in a fireproof safe. Electronic files are backed-up and stored off site.

It was noted that the silvicultural cards lacked SGR and STP information, which is required to report on silvicultural effectiveness.

**Suggestion 16: Neenah Paper should:**

**a) record the Silvicultural Ground Rules and Silvicultural Treatment Packages for completed projects and areas being declared Free-to-Grow, and**

**b) consider tracking changes to Silvicultural Ground Rules and Silvicultural Treatment Packages through the use of Geographic Information System silvicultural layers rather than paper records.**

## 3.6 Monitoring

### 3.6.1 General Monitoring

Compliance monitoring of forestry activities is a joint responsibility of the forest industry and MNR. While both parties are responsible for compliance, sustainable forest licence holders have the lead role in forest compliance planning, conducting inspections, the identification of compliance and non-compliance, reporting to MNR, performance of corrective measures and future preventative measures to ensure improvement, as well as training and education in all areas of forest compliance. The role of MNR is focused on the regulatory aspects of forest management including monitoring, auditing of industry compliance inspections, assessing non-compliance significance, and determining corrective and enforcement action.

MNR prepared a generic District Compliance Plan. The plan contained minimum data and background

information on forestry activities and did not adequately address compliance objectives, priorities, and risk assessment for forest operations. These are requirements if the district forest compliance program is to be carried out in an effective and efficient manner and ensure MNR meets its obligations

Inspection targets by management unit were not separated in the District Compliance Plan. Geraldton Area prepared a spreadsheet to identify inspection targets for each management unit in their portion of the Nipigon District. The Ministry of Natural Resources did not achieve inspection targets in any of the five years during the audit period. In three out of the five years MNR achieved 60% or less of their planned inspection levels for the Kenogami management unit. Wood movement was identified as a target activity to be inspected on harvest reports. No inspections were found on this activity.

**Recommendation 16: The Ministry of Natural Resources must ensure that District Compliance Plans set forest compliance priorities for each forest management unit, using risk analysis and taking into account resource values, sensitivity of operating sites, and compliance history.**

**Recommendation 17: The Ministry of Natural Resources must devote sufficient resources to ensure targets in the District Compliance Plans are achieved.**

MNR staff were conscientious and had a good understanding of the compliance program. The lack of inspections was primarily due to a deficiency in time and resources to carry out the planned program. MNR met the requirements of Recommendation #2 from the 2000 IFA regarding joint inspections and depletion mapping. Regular joint inspections were carried out with Neenah Paper staff. MNR also met with Neenah Paper staff to review depletion mapping and discuss any issues.

Under the Forest Compliance Program the SFL company is responsible to prepare a five-year Strategic Forest Compliance Plan and an Annual Plan of Operations. The requirements for both plans are laid out in the Guideline for Forest Industry Compliance Planning[13].

On the Kenogami Forest, Neenah Paper is responsible for all compliance planning including operations conducted by overlapping licensees. Neenah Paper prepared a five year Strategic Forest Compliance Plan. The plan was generally weak and did not meet minimum compliance planning requirements:

- Information provided was insufficient with little discussion on plan purpose, SFL arrangement, geographic description, unique situations, and past compliance history.
- The goals and objectives were minimal with simply rephrased bullet points from the compliance planning guideline.
- The plan did not contain sections on strategies and actions, which is a requirement of the compliance planning guideline.
- References to education and training addressed only contractors and employees of Neenah Paper.

The annual forest compliance plans prepared by Neenah Paper contained minimal information at the beginning of the audit period. The detail and quality of these annual plans had improved significantly by the end of the audit period. One major deficiency was that Neenah Paper was not accepting compliance planning responsibilities for overlapping licensees. Under the SFL compliance plan, each overlapping licensee was responsible to submit their annual compliance plans. These were either non-existent or lacked sufficient detail. Under the current SFL structure, Neenah Paper is responsible for all forest compliance planning on the Kenogami Forest.

**Recommendation 18: Neenah Paper must prepare the five-year Forest Compliance Strategy and Annual Plan of Actions in accordance with the Guideline for Forest Industry Compliance Planning, including sections on training as well as roles and responsibilities for overlapping licensees.**

[13] MNR. 2005. Guideline for Forest Industry Compliance Planning. 17 pp.

Note: Neenah Paper staff have recognized most of the plan deficiencies. Forest compliance plans have substantially improved for the new five-year planning cycle.

Table 2 provides a summary of the FOIRs for the audit period and the compliance level achieved.

A large number of forest operations inspection reports (27% between 2000 and 2003) submitted by Neenah Paper had a status of In Compliance With Comments (ICWC). This status suggests that improvements are required. The high number was primarily due to a misunderstanding by Neenah Paper staff on what constitutes an ICWC status. Any report that contained comments, whether positive or negative was assigned an ICWC status. This was corrected through training and a better understanding of the requirements.

During the first three to four years of the audit period, SFL forest compliance reports contained little or no data to support the assigned compliance status. This was substantially corrected during the final year of the audit period. Training of Company inspectors and leadership by the SFL compliance supervisor has resulted in the improvements.

Over 50% of the field blocks observed did not have a Completed inspection report. This is a mandatory requirement of the Forest Compliance Handbook[14] and the SFL compliance plans. As a result, most of the utilization problems identified in the Harvest Section of this report were not documented on inspection reports. One or more of these would have been recorded as Not-In-Compliance in their present state. Suspended Operations reports were completed after cutting and skidding were done, but Company inspectors did not submit Completed reports after hauling was finished. The tracking of when Completed reports are required for harvest blocks was complicated by the number of blocks and the fact that wood may not be hauled until the following year.

**Recommendation 19: Neenah Paper must ensure that:**

**a) all forest operations inspection reports meet the minimum data requirements, and**

**b) a Completed inspection report is carried out and submitted for all operations.**

Note: Neenah Paper staff developed a tracking system that, if implemented, will track harvest blocks and timing of Completed reports.

Both MNR and Neenah Paper batched and sent forest operations inspections reports to the other party on a periodic basis. These did not meet the ten-day reporting requirement in the Forest Information Manual[15] (FIM). Inspection reports with a NIC status were usually sent individually but not within the five working days required by FIM. MNR reports were held up at times due to a decision on compliance status and supervisor sign-off. Both parties usually gave verbal notification within 24 hours of discovery.

*Table 2. Summary of Forest Operation Inspections for the Kenogami Forest (2000-2004*).*

| | Neenah Paper Inspections | MNR Inspections | Neenah Paper % of FOIRS in Compliance | MNR % of FOIRS in Compliance |
|---|---|---|---|---|
| Access | 158 | 72 | 97 | 92 |
| Harvest | 590 | 180 | 96 | 85 |
| Renewal | 407 | 47 | 99 | 100 |
| Maintenance | 146 | 11 | 100 | 100 |
| Protection | 0 | 0 | | |
| Total | 1,301 | 310 | 98 | 91 |

Annual Report for final year of the FMP was not available for review at the time of the audit.
Source: AR 12.1, 12.2, and 13 (04/05).
Note: All but four of the Not in Compliance (NIC) were minor.

[14] MNR. 2000. Forest Compliance Handbook.

[15] OMNR. 2001. Forest Information Manual. Toronto: Queen's Printer for Ontario. 400 pp.

Reporting timelines have improved since the new Forest Operations Information Program (FOIP) was implemented in April, 2004. This electronic reporting program allows both MNR and industry inspectors to enter reports and obtain supervisor approval on-line. Inspectors and supervisors signing reports will still need to complete reports on a timely basis

**Recommendation 20: The Ministry of Natural Resources and Neenah Paper must ensure that timelines for reporting under the Forest Operations Information Program are met.**

There is a good working relationship and cooperation between MNR and Neenah Paper staff. Neenah Paper was prepared to take required actions to mitigate or repair compliance incidents. Company inspectors had taken required training and were certified. Neenah Paper also demonstrated a commitment to continuous improvement which is a key component of the forest compliance philosophy.

The Five-Year Compliance Plan identified that compliance inspections will be carried out on silvicultural operations conducted on the Forest. An Exceptions Monitoring Plan was not included in the Five-Year Compliance Plan. However, Neenah Paper's participation in a regional study of the effects of full-tree harvesting on shallow sites was documented in subsequent ARs, as was monitoring of the eagle nest prescriptions which were identified as exceptions.
All annual compliance plans included a discussion on renewal and maintenance. However, none of the annual compliance plans discussed silvicultural training required for staff and silvicultural contractors. Training records for staff and silvicultural contractors are now starting to be kept.

**Recommendation 21: Neenah Paper must ensure that future Annual Compliance Plans identify training requirements and that associated training records are maintained.**

A key element in ensuring a successful silvicultural program is the monitoring of regeneration treatments. Neenah Paper's Silvicultural Effectiveness Monitoring Plan included:

- Plantation Establishment Plots, which were measured:
  - after two months - to provide plantation survival information;
  - at year two - to provide survival and competition information (background information for any potential spray program);
  - at year five (where natural regeneration is also measured) to provide density, species composition and potential Free-to-Grow information;
- Seeding Areas were measured at years two and five to determine regeneration success and to identify future pre-commercial thinning requirements;
- Poplar areas left for natural regeneration were checked after two years to ensure there was sufficient regeneration. If sufficient regeneration was not present consideration would be given to planting conifer (mixed wood management);
- Free-to-Grow Surveys (usually done between year seven and year ten): aerial and ground survey techniques used. Data from ground surveys was collected and analyzed to determine species composition, stocking and site class;
- Historical silvicultural records;
- CLAAG – areas carefully logged around advance regeneration (Figure 15) were checked at year two (to determine if a fill-in plant was required).

**Best Practice 2: Neenah Paper is commended for its efforts and the thoroughness of its silvicultural treatment monitoring program.**

*Figure 15. Careful Logging Around Advanced Growth.*

Neenah Paper is conducting its monitoring plan in accordance with the FMP. The Company has reduced the application of herbicides through improved monitoring, mapping and the use of helicopters to treat smaller projects. Field sites viewed during the audit confirmed that only areas requiring spray were treated. Smaller pockets where natural and artificial regeneration was free from threatening competition were left untreated. While there were a few recent plantations visited that will require future tending, there were no large areas viewed that were failing because of a lack of tending.

The TAR identified that a total of 112,403 ha was surveyed for regeneration success, which is an over-achievement of 61,869 ha and 82% of the area surveyed was declared FTG. This over-achievement was the result of Neenah Paper's forestry staff recognizing that additional human and financial resources were needed to maintain the forest inventory.

**Best Practice 3: Neenah Paper is commended for its Free-to-Grow survey efforts.**

Over 10,000 ha of FTG areas were visually assessed during the audit from the helicopter and on the ground. All FTG areas were excellent and far exceeded the minimum requirements identified in the SGRs. Most of the areas were found to be accurately mapped and reflected the species composition identified by Neenah Paper. Stocking levels however, were generally underestimated and in a few instances the site class did not match the excellent growth rates witnessed. Some potential areas for improvement to the FTG survey program were discussed with the Company.

**Suggestion 17: Neenah Paper should review the methodology used for the Free-to-Grow program including:**

**a) how stocking is derived;**
**b) determining site class;**
**c) recognition of overstory tree species (for example cedar);**
**d) aerial versus ground survey methods (cost benefit analysis);**
**e) use of supplementary photographs to delineate stand boundaries;**
**f) Forest Information Manual requirements (inventory attributes, polygon size limitations, etc.).**

### 3.6.2 Annual report

The spring (due April 15) and fall (due November 15) components of the ARs for 2000-2004 were examined. Beginning in the 2004-2005 reporting year, spring ARs are no longer required. The fall AR for that year also incorporates the required reporting in the year ten AR, as required by the 2004 FMPM. Since not all requirements for the year ten AR could be met, only those requirements that are *reasonably possible* would be expected. The AR for 2004-2005 was not available for inspection by the audit team as it was not due until November 15, 2005.

Three spring ARs were submitted late; two by a matter of days but the 2001-2002 spring report, due on April 15 was delayed first by the MNR strike and then with problems of converting the data base into what was required under FIM. It was not submitted until Oct 21, 2002. Two fall reports were late: 2000-2001 (by three weeks) and 2001-2002 (by one month).

**Recommendation 22: Neenah Paper must make every effort to meet timelines for annual reporting requirements.**

ARs were found to be complete and accurate including a required status report on progress towards implementation of the action plan for the 2000 IFA and reports on the exception monitoring program for a number of eagle's nests. The AR conclusions were careful to monitor progress towards objective achievement and identify emerging trends (e.g. the increasingly evident problem of lower than expected yield estimates because of blowdown and budworm damaged stands).

The MNR-authored report on negotiations with Aboriginal communities, required under T&C 77 (now Condition 34 of the Class EA Declaration Order), was produced for the years 2000-2001, 2001-2002, 2002-2003 and 2003-2004. The report usually consisted of a table showing economic benefits and/or fibre allocations to different Aboriginal communities and a separate text document describing discussions that may have taken place that year among MNR, Aboriginal communities and industry.

Files viewed by the audit team indicated:

- Most negotiations occurred in 1999-2000 and there was no mention of progress or lack of progress in negotiations in subsequent reports
- Not all negotiations were recorded in the reports.

The text portion of the reports would be improved by providing more detail about the table. As an example, the tabular summary shows values of contracts awarded to Aroland First Nation and Matawa First Nations Management Group in 2000-2001 and in 2001-2002, however the written report did not make specific reference to these contracts. The written report should provide details such as the number of persons employed, duration of employment, and the nature of the contract. Neenah Paper had specific details regarding the contracts, but this was not included in the written portion of the report supplied by MNR. The written portion only indicated that silviculture contracts were made available to First Nation communities.

According to the table contained in the report for 2001-2002, Aroland received a contract for approximately $109,000 under the category of Access to Opportunities – Industry. However, the report did not state what the amount was awarded for and MNR staff did not know. Neenah Paper's files did not contain such an amount.

**Recommendation 23: The Ministry of Natural Resources must ensure all communication efforts (meetings) are documented in the written report on negotiations with Aboriginal communities along with results of those efforts.**

**Recommendation 24: The Ministry of Natural Resources must ensure the written portion of the report on negotiations with Aboriginal communities accurately details the nature and value of the contracts shown in the tabular portion of the report.**

All silvicultural activities carried out during the audit term were found to be accurately mapped and reported in the ARs. All AR tables were

completed as required and there was good discussion in the text of the reports.

During the five year audit period Neenah Paper reported a total of 17,940 $m^3$ of brushmat (corduroy) material used in road construction. Approximately 75% of this was reported during the last two years of the audit period. The species used were 93% spruce/jack pine and 7% poplar. Overlapping licensees did not report any corduroy material used, despite the fact they harvested approximately 20% of the volume.

The audit team observed extensive use of brushmat material, mostly spruce, for road construction during the field portion of the audit (Figure 16). This practise occurred throughout the audit period and by all licensees. Appendix E commitments for conifer roundwood, were not fulfilled and there are spruce volume and yield shortages on the Forest.

**Recommendation 25: Neenah Paper and all overlapping licensees must ensure that all merchantable timber used in road construction is measured and reported to the Ministry of Natural Resources for invoicing.**

**Suggestion 18: Neenah Paper and overlapping licensees should consider the use of other materials for road construction (e.g. geotextile, unmarketable species).**

*Figure 16. Merchantable Wood Used as Corduroy During Road Construction.*

### 3.6.3 Report of Past Forest Operations

The Kenogami Forest was created through the amalgamation of the Longlac and Nakina FMAs, the Geraldton Crown Management Unit and a portion of the former Onaman Lake Crown Management Unit. The 1990-1995 RPFO was based not only on these individual units but also associated Timber Management Plans for the period. The transition from TMPs to FMPs, together with the amalgamations, made preparation and subsequent evaluation of the 1990-1995 RPFO difficult. The RPFO discussed these difficulties and provided tabular information and additional discussion separately for the three former management units.

All required tables and associated discussion were provided as specified in the phase-in requirements in the 1996 FMPM. Additional tables and associated discussion were also provided. Tables RPFO-1, RPFO-2, RPFO-3, RPFO-4, RPFO-5, RPFO-6, RPFO-7, RPFO-8, RPFO-10, RPFO-11, and RPFO-14 were provided for all three areas separately. Table RPFO-12 reported compliance inspections for the Kenogami Forest as a whole. Tables RPFO-14 and RPFO-6 also conveniently provided an additional summary table for the entire Kenogami Forest.

The Summary and Evaluation of Operations provided a clear picture of the area as a whole, while identifying significant differences between the former management units. The discussion of stand yield, market flexibility and variable mill production helped explain the difference between planned and expected harvest depletion area and volume. Harvest performance by volume was significantly higher than by area. There was no discussion of future management of bypass areas, summary of maximum and average block area, or listing and map of depleted stands.

The RPFO author showed ample evidence of local knowledge, but the document lacked discussion of future or past trends. This reduces the usefulness of the RPFO for the planning team. While there was some discussion in later sections of the RPFO, the FMPM specifically requires a summary, conclusion and recommendations to be presented at the end of the Summary and Evaluation of Operations.

The audit team feels the RPFO author should be commended for presenting a complete data set for the results of operations. This historical data can provide utility for preparing future reviews of past operations. Even though forest units have been redefined, the total activity by FMA area, management unit, licensee, etc., will illustrate useful trends.

Tables RPFO-8 and RPFO-9 are difficult, if not next to impossible to correctly produce and interpret, especially in instances where the forest units and landbase have been changing from plan to plan (which is the case in almost all of the Management Units across Ontario). In their present form the Tables do not assist in proving the forest is being sustained. Under the 2004 FMPM, RPFO Tables 8 and 9 are replaced by AR Tables 14 and 16, which may improve the reporting of regeneration success and trends.

## 3.7 Achievement of Management Objectives and Forest Sustainability

### 3.7.1 Achievement of Management Objectives

Management objectives are developed for all Crown forests and, as such, must be consistent with the primary goal of forest management on Crown lands, which is to achieve a healthy, sustainable forest ecosystem, and derive the associated environmental, social and economic benefits. At the individual forest level, management objectives are the desired outcomes of forest management planning achieved through the management of forest cover. The assessment of the achievement of management objectives is, therefore, a critical part of the review of the success of forest management. It also plays an important role in the process of adaptive forest management by allowing adjustments in objectives, targets and strategies over time to reflect successes, failures and the inclusion of new information and approaches to forest management.

The 1995-2000 RPFO for the Kenogami Forest included an assessment of the achievement of management objectives, as required. The audit team's review of the RPFO author's assessment of the achievement of the management objectives

included the comments contained in the 2000 IFA Report and the tables and text contained in the 1995-2000 RPFO. No relevant field sites were viewed to confirm whether or not objectives were met because these years were outside of the audit period and were assessed as part of the 1995-2000 IFA. However, some sites operated prior to 2000 were viewed to confirm FTG status.

The 1995-2000 FMP was prepared under the requirements of the Timber Management Planning Manual and as such, less direction was given to planning teams regarding the development of objectives. A single principal objective, below, was set with a number of secondary objectives developed in support of the principal objective. The principal objective was:

*To optimize the continuous flow of appropriate wood fibre to the forest industries that depend on the Longlac and Nakina Forests for their wood supply (Optimum Sustained Yield), to allow for other uses of the forest (Integrated Resource Management), and to protect the environment (Environmental Protection) through sound timber management.*

A summary of the secondary objectives, the RPFO author's assessment of their achievement, and the audit team's comments on that assessment are presented in Table 3.

The audit team reviewed progress toward the achievement of the management objectives set in the 2000-2005 Kenogami Forest FMP. A summary of that assessment is presented in Table 4. Where, in the opinion of the audit team, an objective was either partially met or not met, the corresponding recommendation or suggestion is shown.

*Table 3. Review of the Assessment of Achievement of Management Objectives in the 1995-2000 RPFO.*

| Objective | RPFO Author's Assessment or Recommendation | Audit Team Comments |
|---|---|---|
| **Optimum Sustained Yield** | | |
| Normalize the forest age class structure | Approach has changed to emulation of natural forest conditions | Agree |
| Develop and maintain road network | Approximately 50% of planned primary/secondary roads constructed due to various factors; objective achieved | Agree<br>Rationale for shortfalls acceptable |
| Utilization of the allowable depletion | Volumes and area harvested were below planned but mills received necessary volumes | Agree |
| Maintain a forest regeneration program | Accomplishments generally consistent with planned targets | Agee |
| Prevent or minimize damage caused by fire, insects and disease | Forest fire fighting capabilities maintained and utilized; salvage harvesting conducted | Agree |
| **Integrated Resource Management** | | |
| Undertake activities consistent with principles of integrated resource management | Known values identified and protected; Mixed success with First Nations; Roads open to public | Agree |
| **Environmental Protection** | | |
| Undertake activities that will protect and maintain environmental quality | Guidelines applied and followed; Company was active supporter of woodland caribou research project | Agree |

Note: Secondary objectives are paraphrased in the interest of space.

*Table 4. Review of the Assessment of Achievement of Management Objectives in the 2000-2005 FMP.*

| Objective | Audit Team Assessment of Progress Toward Achievement | See Recommendation or Suggestion |
|---|---|---|
| **Forest Diversity** | | |
| Maintain current biodiversity | Met | |
| Protect, maintain, monitor landscape process | Partially Met | Achievement depends heavily on monitoring of two indicators (net primary productivity and water yield); these indicators are no longer required to be monitored according to the 2004 FMPM and no new indicators named to enable monitoring of landscape processes. (see Rec 26) |
| **Socioeconomic** | | |
| Ensure optimum, sustainable, consistent and predictable volume is available | Partially Met | Recommendation 7<br>Suggestion 8 |
| Utilize allowable fibre supply | Partially Met | Recommendation 12<br>Suggestions 12; 18 |
| Maintain/provide optimum employment opportunities | Met | |
| Explore/identify where opportunities exist for First Nations benefits | Partially Met | Recommendations 2; 23; 24 |
| Identify, maintain, protect cultural and spiritual values | Partially Met | Suggestion 10 |
| **Provision of Forest Cover** | | |
| Maintain suitable habitat for selected wildlife | Met | |
| Protect, maintain, provide habitat for marten | Met | |
| Protect, enhance habitat for moose outside caribou management zone | Met | |
| Protect, maintain, provide habitat for woodland caribou within caribou management zone | Met | |
| Protect, maintain suitable habitat values for all other fish and wildlife species | Met | |
| Ensure suitable habitat conditions to sustain a viable trapping industry | Met | |
| Maintain remoteness of existing remote resource based commercial tourism | Met | |

*Table 4 Continued.*

| Objective | Audit Team Assessment of Progress Toward Achievement | See Recommendation or Suggestion |
|---|---|---|
| **Provision of Forest Cover (continued)** | | |
| Maintain opportunities for viable road based tourism industry | Met | |
| Maintain, provide opportunities for optimum levels of local employment | Met | |
| Maintain, enhance current levels of opportunity for resource based recreation | Met | |
| **Silviculture** | | |
| Ensure sustainability, improve forest growth, health with effective renewal programs | Met | |

### 3.7.2 Review of RPFO Assessment of Sustainability

The assessment of forest sustainability is produced through an examination of measurable indicators associated with a set of forest sustainability criteria (see Section 3.7.4, below for further discussion), and an analysis of changes to both the forest condition and the socioeconomic condition. The RPFO author acknowledged that the available information did not allow for a thorough assessment of forest sustainability. However, the author went on to produce a thoughtful and informative discussion despite the limitations of the information. For the most part, the RPFO information is the same as that provided in the TAR. Some additional information was reported for clearcut and wildfire sizes which indicated a general consistency between regional natural disturbance sizes and frequencies compared to those resulting from wildfire and harvest on the Kenogami Forest. That is that there were a large number of small disturbances and a small number of large disturbances. The large disturbances accounted for most of the disturbed area, both under the estimated natural disturbance situation and in actuality.

Water yield is estimated based on the area of second order watersheds disturbed during the last ten years. The RPFO reports approximately 10% of the productive forest on the Kenogami Forest was disturbed; well within the maximum permissible of 50%. This indicator, however, has not been carried forward with the suite of indicators contained in the 2004 FMPM and therefore is of little meaning. One additional observation evident from the information contained in the RPFO was the increase in utilization of the planned harvest area evident across all working groups.

### 3.7.3 Review of the Comparison and Trend Analysis of Planned versus Actual Forest Operations

The TAR is a document prepared by the auditee, in this case Neenah Paper, to provide an overview of changes in the forest landbase, and a comparison of planned and actual forest operations over several planning terms. For the Kenogami Forest, the analysis spanned three planning terms, from 1990 to 2004 inclusive, for a total of 14 years.

The audit team reviewed the TAR and found that it was prepared in accordance with the requirements of Appendix C of the IFAPP and that the information in the tables matched the source documents. The TAR, included as Appendix A of this audit report, is the correct and complete report.

The Kenogami Forest landbase decreased significantly (19%) between 1990 and 2005 as the result of land withdrawals, the largest of which was a transfer of land from the former Nakina Forest to the Ogoki Forest. Despite these withdrawals, the Kenogami Forest remains the second largest Crown forest in the Province. Barren and Scattered (B&S) and Not Satisfactorily Regenerated (NSR) area

increased from 52,000 ha (3%) to 241,000 ha (17%) of the production forest landbase during the same period. The results of recent FTG surveys have yet to be added into the landbase, which will substantially reduce the amount of B&S/NSR.

There was a significant evolution in forest unit descriptions, from seven in 1990 to 11 in 2005. Changes in forest units were common across the Province, and to a certain extent are beneficial in better capturing species/ecosites/management relationships. However, at some point forest units must be stabilized to permit long-term trend information to be developed and analyzed for purposes of assessing forest sustainability (See Recommendation 28).

Table 5 shows a trend towards increasing use of the available harvest area. This is consistent with the reduction in the overall area on the Forest, due to withdrawals, and the increase in utilization of aspen. Yields, on the other hand, demonstrated the reverse trend (Table 6).

*Table 5. Actual Harvest Area Compared to Planned Harvest Area (%).*

| | 1990-1995 | 1995-2000 | 2000-2005 |
|---|---|---|---|
| All Species | 71 | 83 | 86 |

*Table 6. Actual Harvest Volumes Compared to Planned Volumes (%).*

| Species | 1990-1995 | 1995-2000 | 2000-2005 |
|---|---|---|---|
| Spruce/pine/fir | 83 | 82 | 60 |
| Poplar | 85 | 56 | 59 |
| Birch | - | - | 32 |

According to the TAR, a combination of factors, including extensive losses to spruce budworm and blowdown, and out of date yield estimates contributed to yields estimates being overstated in the 2000-2005 FMP. Significant declines in the total growing stock on the Forest were also evident from information contained in the TAR. Neenah Paper has worked diligently to refine yield estimates for the new FMP; however, the audit team is concerned that forecast yields may still be too high and has made a suggestion to assist in refining yield curve estimates (see Suggestion 8).

The TAR described changes in forest composition over time by forest unit and age class. Interpretation of the information is complicated by the fact that forest unit descriptions changed between plan terms. Overall, the information suggests relative stability (i.e. within forest units), although balsam fir is no longer tracked as a separate forest unit. Three new forest units were created in the 2000-2005 plan term for Conifer Mixedwood, Other Conifer and Production Forest Reserve. Ever-changing forest units were noted by the audit team as being counterproductive to efforts to assess forest sustainability. Regarding age class structure, there was a gradual movement to the desired condition of less overmature forest and more area in younger age classes.

Actual renewal activities compared to planned activities varied; however, this is not unexpected. Harvest areas were less than planned in all terms and circumstances may have changed during plan implementation that warranted changes to planned silvicultural activities. For example, a large aerial herbicide spray program was forecast in 2000-2005 but less than 50% was accomplished. The reduction in actual spray area was attributed to on-the-ground verification of the need for chemical tending on a block by block basis, which is difficult to reliably estimate at the planning stage. A more important factor than having precise estimates of planned treatment areas is whether the actual work being done is successful and supports the management objectives. Field observations by the audit team confirm that prescriptions applied were appropriate and effective.

Averaged over the three plan terms, regeneration treatment area represented 84% of the harvest area (Table 7).

*Table 7. Harvest vs. Regeneration Treatment (average annual).*

| | 1990-1995 | 1995-2000 | 2000-2005 | All Years |
|---|---|---|---|---|
| Harvest Area (ha) | 10,230 | 12,116 | 12,461 | 11,602 |
| Regeneration Treatment Area (ha) | 9,317 | 8,816 | 11,080 | 9,737 |
| Regeneration Treatment (%) | 91 | 72 | 88 | 84 |

Regeneration treatments may lag behind harvest and explain to some degree the gap between harvest and renewal areas. As well, the amount of B&S/NSR area increased by approximately 100,000 ha between 1995 and 2005; likely accounting for

some harvest areas that have yet to receive regeneration treatment. Observations during the audit indicated that regeneration work is occurring more closely following harvest operations than perhaps was the case historically.

The audit team observed extensive areas of regenerating harvest blocks which supports the conclusion that regeneration efforts on the Kenogami Forest are successful. Of the surveyed area in Table 8 approximately 82% met regeneration standards at the time of survey. This is not unusual since some areas will require a tending treatment or some additional time to reach FTG status. Based on survey information, Neenah Paper has recently adjusted its minimum FTG height standards for black spruce to 0.8 m from 1.0 m, which will increase the proportion of area meeting the FTG standard in future surveys.

*Table 8. Renewal Success.*

| Area Surveyed | Area Declared Successfully Regenerated | Successfully Regenerated |
|---|---|---|
| 112,403 ha | 91,820 ha | 82% |

### 3.7.4 Achievement of Forest Sustainability

Prior to implementation of the CFSA, the objective of forest management was to provide timber to the forest industry in a manner consistent with sound environmental practices and to provide for other uses of the forest. With implementation of the CFSA in 1994, recognition was given to the importance of forest sustainability. It should be kept in mind that the means of achieving forest sustainability under the CFSA is through the management of forest cover. According to the CFSA, forest sustainability is defined as long term Crown forest health. Two key principals are associated with forest sustainability:

- *Large, healthy, diverse and productive Crown forests and their associated ecological processes and biological diversity should be conserved.*
- *The long term health and vigour of Crown forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values.*

The methods of planning for and assessing the achievement of forest sustainability are described in the FMPM. It begins with an eight-step process that includes gathering background information, setting objectives and developing strategies, identification and analysis of management alternatives, selection of a preferred management alternative, and the identification of specific areas for forest operations. Throughout the process, opportunities are available to the public to participate and provide input into the development of the FMP. The assessment of achievement of forest sustainability involves the analysis of trends associated with a set of criteria and indicators of sustainability, given in the FMPM.

Monitoring of forest sustainability under the 1996 FMPM is scheduled to occur when a plan is completed and the RPFO compiled. The RPFO would look at a suite of 14 indicators, compare the before and after plan levels (and levels recorded in previous plans) and make a determination as to whether the indicators were moving in a positive or negative direction with respect to plan objectives and forest sustainability.

The 2000-2005 Kenogami Forest FMP was the first prepared by Neenah Paper under the 1996 FMPM. The RPFO following the completion of this plan would have established baseline levels for nine of the 14 indicators to be used in the future for forest sustainability assessment. Five indicators used in the development of the FMP would have baseline levels already recorded and would be assessed for change.

The new FMPM (2004) has replaced RPFOs with years three, seven and ten ARs. Plans created under the 1996 FMPM are to produce a year ten AR in 2004-2005 instead, to the extent that it is practical and reasonable. The year ten AR was not available for inspection by the audit team because it was not due until the early winter of 2005. The audit team is concerned, however, with changes in the forest sustainability indicators and the assessment of forest sustainability methodology. The backbone of forest sustainability assessment is the long term monitoring of the same indicators for

change. Changing indicators and forest sustainability assessment methodology confounds the assessment of whether a forest is being managed sustainably or not. Meaningful forest sustainability assessment is further complicated by ever-changing forest units (used to describe the forest) and changes in the forest land base (e.g. new Parks and conservation reserves).

**Recommendation 26: Corporate Ministry of Natural Resources must provide a consistent methodology and suite of indicators to assess forest sustainability.**

**Recommendation 27: The Ministry of Natural Resources Regions must finalize forest units for all Crown Forests during the next forest management planning cycle.**

In developing its opinion on the achievement of forest sustainability on the Kenogami Forest the audit team considered the following:

a) 2000-2005 Kenogami Forest FMP;
b) Annual Work Schedules and Annual Reports associated with the above FMP;
c) 1990-1995 Report of Past Forest Operations;
d) 1995-2000 Report of Past Forest Operations;
e) Comparison and Trend Analysis of Planned vs. Actual Forest Operations;
f) Input from staff of Neenah Paper and MNR Nipigon District, commitment holders and members of GANRAC;
g) Written input received from the public;
h) Implementation and effectiveness of forest management activities viewed on 40 field sites.

Based on the information provided and the audit team's review of documentation and examination of the Forest, it is the opinion of the audit team that forest sustainability is being achieved on the Kenogami Forest, although improvement in some areas is required, as described in the various recommendations and suggestions contained in this audit report.

*Table 9. Summary of Assessment of Forest Sustainability.*

| Forest Sustainability Criteria | Met (Yes/No/Partial) | Audit Team Comments |
|---|---|---|
| Biological Diversity | Partial | Diversity is maintained at the genetic and species levels; systems to evaluate the contribution to landscape level biological diversity by the individual management unit are weak. Significant areas are set aside in parks and reserves. |
| Forest Condition and Ecological Productivity | Yes | Natural processes are maintained to the extent practical. An active fire suppression program significantly reduces the area that would be burned naturally. Site productivity is not diminished and an appropriate range of naturally occurring species is maintained. |
| Soil and Water Quality | Yes | Harvest and renewal planning and practices are undertaken that protect both soils and water quality and quantity. |
| Multiple Benefits to Society | Partial | The Kenogami Forest supplies significant financial and social benefits, locally and provincially (e.g. employment, recreation, taxes); benefits from forest management accruing to Aboriginal peoples remain poorly defined. |
| Accepting Society's Responsibility for Sustainable Development | Yes | Forest management planning allows for public involvement at all stages including direct representation via GANRAC and through a variety of opportunities. Company and MNR staff are responsive to public concerns. |

## 3.8 Contractual Obligations

### 3.8.1 Contractual Obligations - Neenah Paper

Neenah Paper has contractual obligations associated with the Kenogami Forest, these being stipulated in the SFL, dated April, 1997. Conformance with the contractual obligations is a condition of licence extension, and was examined by the audit team. The various obligations are listed below with a summary of the audit team's findings for each one.

**Payment of forest charges**: Based on reports from MNR's accounting division, all required payment were up-to-date, with the exception of a small amount ($3,269.58) outstanding from an overlapping licensee.

**Wood supply commitments and overlapping licences**: Appendix E of the SFL contains a number of wood supply commitments on the SFL holder. Most of the commitments were not filled due to lower than planned yields, failure of business to business arrangements between Neenah Paper and the receiving mills, and in some instances market conditions. Memorandums of Agreement were signed between Neenah Paper and all receiving mills listed in Appendix E, except for Tembec Inc., Hearst.

Table 10 details Appendix E wood supply commitments and the actual volumes delivered over the five year period of the audit. Wood flows to Longlac Wood Industries (LWI) were disrupted by poor market conditions for composite quality material and a continuing need for veneer. Composite material normally makes up over 80% of volume. Deliveries were also affected by poor relations between the two companies and an inability to agree on prices.

Tembec (Hearst) received 32,200 $m^3$ of coniferous sawlog material or about 25% of their commitment under Appendix E over the five-year period of the audit. This commitment (25,000 $m^3$ annually) was for timber harvested by First Nations of Constance Lake and delivered to Tembec. The commitment also required Tembec to make available to Neenah Paper equal volumes of coniferous fibre as either roundwood or chips in exchange for the sawlog material. A Memorandum of Agreement was not signed between the two companies to facilitate deliveries. Constance Lake First Nation did not complete their harvest allocation. Tembec is unable to supply conifer chips to Neenah Paper because they have other commitments for the chips. This was discussed with MNR and it was agreed that MNR would assist with the resolution. A resolution to this situation is needed and could include either removing/adjusting the commitment or completing negotiations to sign a Memorandum of Agreement between Neenah Paper and Tembec, Hearst.

**Recommendation 28: The Ministry of Natural Resources and Neenah Paper, in cooperation with Tembec, must resolve the wood supply commitment to Tembec, Hearst, in Appendix E of the Sustainable Forest Licence.**

*Table 10. Comparison of Wood Supply Commitments and Deliveries.*

| Company | Species | Annual Volume ('000s $m^3$) | 5 Year Total ('000s $m^3$) | 5 Year Actual ('000s $m^3$) |
|---|---|---|---|---|
| Longlac Wood Industries | Poplar | 310.0 max | 1550.0 (FMP) | 529.1 |
| Longlac Wood Industries | Spruce Veneer | 19.25 | 96.25 | 20.0 |
| Lecours Lumber | Conifer | 55.36 | 276.8 | 199.8 |
| Lecours Lumber | Conifer | 50.0 | 250.0 | 159.4 |
| Tembec | Conifer | 25.0 | 125.0 | 32.2 |
| Long Lake Forest Products | Conifer | 240.0 | 1200.0 | 1207.0 |

Lecours Lumber has two wood supply commitments for coniferous sawlog material. Actual deliveries were less than the commitment on both. The shortfall on the first commitment (55,360 $m^3$ annually) to Lecours Lumber was the result of lower yields on their portion of the AHA. The second commitment (50,000 $m^3$ annually) was for timber harvested by Constance Lake First Nation and delivered to Lecours Lumber. Constance Lake First Nation did not complete their harvest allocation. Included in the actual deliveries is approximately 30,000 $m^3$ from additional harvest area offered to Lecours Lumber (by Neenah Paper) in the final year of the FMP to make up for volume shortfalls. In total, Lecours Lumber received 68% of their Appendix E commitment. Both commitments required Lecours Lumber to give Neenah Paper the first opportunity to purchase equal volumes of coniferous fibre as either roundwood or chips in exchange for the sawlog material.

**Recommendation 29: Neenah Paper, with assistance from the Ministry of Natural Resources, must ensure Lecours Lumber in Hearst receives their pro rata share of the coniferous volume on the Kenogami Forest, as per Section 3.1 of the Sustainable Forest Licence.**

This may include monitoring of harvest achievement by overlapping licensees and reallocation of AHA.

Deliveries to Long Lake Forest Products of coniferous sawlogs were approximately equal to the Appendix E commitment. Nakina Forest Products received about 1.2 million $m^3$ of conifer sawlogs. Neenah Paper indicated this was open market sawlogs (approximately 1,000,000 $m^3$) identified in Table FMP-24 that could be exchanged for chips if market conditions were beneficial. Deliveries were also facilitated by favourable business arrangements between the two companies, and corresponding return of conifer chips to Neenah Paper.

**Planning, reporting, information supply and utilization requirements**: The Forest Management Plan and associated Annual Work Schedules and Annual Reports were prepared according to requirements and were well written, comprehensive documents. Neenah Paper's silvicultural effectiveness monitoring program is thorough and the Company was active in an extensive FTG survey. Utilization of merchantable timber needs improvement, including opportunities to make use of species deemed unmarketable in the FMP.

**Salvage harvesting**: Planned salvage operations of spruce budworm damaged stands were identified in the FMP. These areas were mostly in the southern portion of the Forest. Extensive snow damage and breakage occurred in the northern part of the Forest during October 2001 which resulted in additional salvage area. Most of the snow damage was in pockets which reduced stocking, but did not destroy the stand. Areas greater than 50% damage, and that were accessible, were harvested. There was good coordination between MNR and Neenah Paper to identify and map the salvage areas. Salvage operations were conducted in four of the five years of the audit period.

**Forest protection**: No pest management programs were undertaken during the term of the audit.

**Performance reviews**: An independent forest audit was conducted in 2000 covering the term 1995–2000. An audit report was produced and an audit action plan was developed by Neenah Paper and MNR to address the audit recommendations. The audit action plan also addressed the audit suggestions, which is encouraged but is not a requirement. The audit action plan was prepared by Neenah Paper and MNR Nipigon District staff and dated August 27, 2001. It was submitted by the District Manager on August 30, 2001. The action plan was fully approved by MNR Forest Management Branch (FMB) on November 19, 2001. At the same time, FMB requested that an audit action plan status report be submitted by November 19, 2003.

The audit action plan status report was produced to report on the implementation of the action items. It was well written and contained detailed explanations of each completed or ongoing action. The status report was signed as prepared by Neenah Paper and MNR Nipigon District on

November 12, 2003 and was submitted by the District Manager on Dec 18, 2003, one month after the submission date requested by FMB.

**Forest Renewal Trust Account**: The minimum Forest Renewal Trust Account (RTA) balance was maintained in three of the five years of the audit. In one of the years, a cheque from Neenah Paper was deposited into the RTA on June 17 of the same year and the account showed the minimum balance being met on June 30. In the second year of the shortfall a cheque was issued by Neenah Paper on March 28 but was not posted to the RTA until April of the following year. According to Neenah Paper staff, a reduction in the contribution rate for conifer (to reduce a large surplus in the RTA) came at a time when deliveries were unusually high (to reduce bush inventory); the two factors combining to account for most of the shortfall.

**Specified Procedures Audit**: The audit team conducted an assessment of approximately 24% of the projects funded under the Renewal Trust Fund for the fiscal year 2003-2004. The assessment determined that the maps, records, and fieldwork associated with Forest Renewal Trust Account expenditures for 2003-2004 were accurate and that the fieldwork was appropriate to the site conditions encountered.

**Withdrawals**: According to the Summary of Licence Amendments in Appendix G of the SFL, three withdrawals occurred during the audit term, all associated with the OLL initiative.

**Silviculture standards**: The original estimate of the area included in Category 1 and 2 lands prior to the SFL being issued was not available. At the time the SFL was issued, MNR and the Company prepared and signed a set of maps showing the areas involved. The total area was never measured and summed. Since then, the Company has been highlighting all of the areas identified on the maps as they are declared FTG. The total area outstanding from Category 1 and 2 lands to be declared FTG is 670.2 ha, most of which is expected to meet FTG standards once the stocking has been recalculated.

**Aboriginal opportunities**: Neenah Paper is required to *work cooperatively with the Minister and local Aboriginal communities in order to identify and implement ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management planning*. This requirement is contained in the Licence and supports EA Term and Condition 77.

Meetings took place in 1998 as a result of such discussions, and an agreement was reached with the Matawa First Nations Management Group. Through this agreement, all opportunities to bid would flow through the Matawa First Nations Management Group. During that time Matawa First Nations Management Group employed a forester who acted as coordinator to administer any contracts for the five First Nations. The same person also sat as a planning team member on behalf of the five First Nation communities.

Silviculture contracts totalling approximately $543,000 over the five-year period were awarded to the Matawa First Nations Management Group and most of the contracts were completed. In addition, thinning projects, funded by the Living Legacy Trust Fund, were awarded to the Geraldton Community Forest and the Wilderness Group in 2003-2004. These projects employed some local Aboriginal thinners. Geraldton Community Forest was also awarded a cone picking contract for approximately $80,000 and MNR stated that a large number of persons from Aroland were hired for the work. Based on the audit team's interviews, First Nations do not view these opportunities as being a result of T&C 77, but rather seasonal employment opportunities that have always existed in the forest industry.

During the term of the audit, two small harvesting contracts were awarded to separate companies from Aroland First Nation. Neither contract was completed, one due to issues with union agreement arrangements. Aroland First Nation is in close proximity to a neighbouring sawmill whose operations have received fibre from the Kenogami Forest and an adjacent forest. Potential employment opportunities should also exist here for these community members.

Neenah Paper stated that Ginoogaming First Nation has not brought forward any requests for harvesting in the Kenogami Forest. Pays Plat First Nation expressed an interest to Neenah Paper in a power plant but has not pursued harvesting on the

Kenogami Forest. Long Lake #58 has not had access to wood allocations but was offered salvaging opportunities on which they did not follow through. Neenah Paper also stated that Long Lake First Nation members are employed in bush or mill operations at LWI and Long Lake Forest Products (LLFP), although exact numbers could not be determined. As a result of an MNR directive, Constance Lake First Nation was provided an allocation of 75,000 $m^3$ annually; however only approximately 60,000 $m^3$ was produced to date due to start up difficulties with the community's company, Mammamattawa.

An opportunity to bid for slash pile burning was offered twice throughout the audit term with no response from the First Nations. In 2004, surge hiring opportunities became available and were sent to each First Nation to post so that qualified members could apply for. As a result, Neenah Paper received ten applications and hired five First Nation members.

The Aboriginal composition of the workforce at LLFP appears to be substantial and may satisfy some of the expectation of economic benefits under T&C77. According to Neenah Paper, figures provided to them indicate that approximately 82% of the 250 employees at LLFP are First Nation or affiliate (spouse is First Nations). LLFP received approximately 1.2 million $m^3$ of conifer from the Kenogami Forest during the FMP term in exchange for conifer chips to Neenah Paper's mill.

Neenah Paper stated that it employed Aboriginal persons, but an exact number cannot be determined because questions regarding Aboriginal descent cannot be asked on an application form. It is also understandable that First Nations people employed by the forest industry but who reside off-reserve may not be adequately reflected in estimates of overall Aboriginal workforce content.

Regarding the number of Aboriginal employees in mill and bush operations, determination of whether this was a result of implementation of T&C 77 could possibly be derived from employees' start date. Employment records would also indicate if the employee's address is a First Nation community; this would at least provide information on how many employees are residents of a First Nation community. In addition, a person can volunteer to provide information on their ancestry.

Neenah Paper has demonstrated its efforts to meet the Company's contractual obligations with respect to Aboriginal opportunities in a variety of ways including: participation in meetings with First Nations, Union and MNR; negotiations with the Union to facilitate First Nations harvesting opportunities; communication of job opportunities to First Nations; and provision of opportunities to Aboriginal people to bid on silviculture contracts.

The audit team acknowledges the efforts of Neenah Paper towards meeting its contractual obligations with respect to Aboriginal opportunities. However, in the absence of measurable indicators and targets, the level of success of these efforts or overall progress in meeting the expectations of T&C 77 (Condition 34) cannot be adequately evaluated (see Recommendation 2).

**Compliance planning and monitoring**: Neenah Paper is responsible for all compliance planning, including operations conducted by overlapping licensees. However, the Company was not accepting responsibility for planning for overlapping licensees (see Recommendation 18). The five-year Strategic Forest Compliance Plan and Annual Plans of Operations were inadequate, but Neenah Paper staff have addressed most of the planning deficiencies and the audit team observed that the plans have significantly improved for the new planning cycle.

**Operations on mining claims**: MNR records and MNR and Neenah Paper staff interviews indicated that patented claim holders were advised (through notice) following receipt of the AWS, and that this record was sent to Neenah Paper.

### 3.8.2 Actions Associated with the 2000 Independent Forest Audit

A total of 23 recommendations (including licence extension) were made in the 2000 IFA report. In conducting its review of the actions developed to address the recommendations, the audit team assessed whether planned actions were consistent with the intent of the original recommendation, appropriate to address the recommendation, that the actions taken were those described in the approved action plan, and that the actions taken were effective. In the view of the audit team all but seven recommendations were fully addressed and one was not met. Table 11 indicates those recommendations that require further attention and any associated Recommendations or Suggestions arising as a result of this audit.

*Table 11. Assessment of Achievement of the 2000 IFA Recommendations.*

| Recommendation Number | Responsibility Assigned in Action Plan | Summary | Completed Yes/No/Partial |
|---|---|---|---|
| 1 | MNR, Neenah Paper | Minister to extend term of licence conditional upon suitable progress on recommendations of audit | No<br>At the time of the 2005 audit the SFL was in the process of being signed |
| 2 | MNR | Provide adequate resources for joint inspections and depletion reconciliation | Yes |
| 3 | MNR | Consult with First Nations regarding participation in the LCC | Yes |
| 4 | MNR | Assist LCC in developing a training plan | Partial<br>See Suggestion 3 |
| 5 | MNR | Conduct assessment of local socio-economic impacts of forest use | Yes |
| 6 | MNR | Develop methodology for collection of native values information | Partial<br>See Suggestion 10 |
| 7 | MNR | Collect more values data (stream, fish habitat, caribou wintering habitat, cultural heritage) | Partial<br>See Recommendation 4 and 6 |
| 8 | MNR | Ensure NRVIS is operational and conduct training/develop procedures | Yes |
| 9 | Neenah Paper, MNR | Document all issues in forest management plan | Yes |
| 10 | Neenah Paper, Lecours, Longlac Wood Industries, FRLs*, MNR | Improve water crossing installations | Partial<br>See Recommendation 14 Suggestion 15 |
| 11 | Neenah Paper, Lecours, Longlac Wood Industries, FRLs, MNR | Conduct training on determination of high water mark | Yes |
| 12 | Neenah Paper, MNR | Develop consistent documentation for changes to AOCs | Yes |
| 13 | Neenah Paper | Haul cut timber within one year of harvest | Yes |
| 14 | Neenah Paper, MNR | Reduce inventory of harvested timber | Yes |
| 15 | Neenah Paper | Identify and track level of inventory in ARs | Yes |

*Table 11 Continued.*

| Recommendation Number | Responsibility Assigned in Action Plan | Summary | Completed Yes/No/Partial |
|---|---|---|---|
| 16 | Neenah Paper, Lecours, Longlac Wood Industries, FRLs, MNR | Reduce amount of merchantable timber left in harvest areas and slash piles | Partial<br>See Recommendation 12 Suggestion 18 |
| 17 | Neenah Paper, LWI, Lecours Lumber | Be more diligent in reporting non-compliances<br><br>Work together to minimize non-compliances and ensure systems for timely reporting | Yes |
| 18 | Neenah Paper, Lecours, Longlac Wood Industries, FRLs | Minimize loss of forest land to slash piles | Partial<br>See Recommendation 13 |
| 19 | Neenah Paper, Lecours, Longlac Wood Industries, FRLs, MNR | Take more responsibility for compliance monitoring and reporting | Yes |
| 20 | Neenah Paper | Consolidate annual reporting and discuss differences between planned and actual performance | Yes |
| 21 | Neenah Paper, MNR | Take greater care to mark and protect claim posts | Yes |
| 22 | MNR | Identify known mining claims for AWS | Yes |
| 23 | MNR | Develop framework for implementing T&C 77 | Partial<br>See Recommendation 2 |

* Forest Resource Licence holders (FRLs).

# 4.0 Summary of Conclusions and Recommendations

The audit team concludes that, with the exceptions noted in the audit report, management of the Kenogami Forest was in compliance with legislation, regulations and policies and was effective during the term of the audit. The Kenogami Forest was also managed in compliance with the terms of Sustainable Forest Licence No. 542256 held by Neenah Paper Company of Canada. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol.

Commitment to sustainable forest management was evident through the policies and actions of Neenah Paper and MNR staff. The public is provided significant opportunity for input into planning and an active Local Citizens Committee contributes meaningfully to the process. Involvement of Aboriginal peoples has been mixed and the sharing of some values information with MNR remains an outstanding issue. The ability to assess progress with respect to benefits accruing to Aboriginal people from forest management planning is hampered by a lack of measurable indicators and targets.

Planning requirements were met and the FMP was well written. Similarly Annual Work Schedules and Annual Reports were comprehensive and thoughtfully prepared. The FMP was implemented appropriately and adjustments to the FMP were made when necessary (e.g. for salvage of blowdown). The need for improvements to some areas of operations was noted by the audit team (e.g. utilization, regeneration of roads and landings, water crossing installations).

Compliance monitoring by MNR needs strengthening, although the overall compliance record of Neenah Paper exceeds 90%. Recent improvements were evident in the quality of compliance plans prepared by Neenah Paper.

Most of the objectives set for the 2000-2005 FMP were met. The audit team identified five objectives that were partially met. Recommendations and/or suggestions to address these were developed.

Neenah Paper met the contractual obligations as described in the Kenogami Forest Sustainable Forest Licence. Volumes associated with wood supply commitments contained in Appendix E of the SFL were available but were not always received by commitment holders due to business to business relations and market conditions. Improvement is needed in the area of reporting merchantable wood used as corduroy. Of the 23 recommendations developed from the 2000 IFA, the audit team considers that all but seven were fully addressed, and one, dealing with extension of the SFL, was not met. Recommendations and/or suggestions were provided by the audit team to address these.

Table 12 provides a summary, by responsible part, of the number of recommendations, suggestions and best practices identified during the audit. A complete list is given in Table 13.

*Table 12. Summary of Recommendations, Suggestions and Best Practices by Responsible Party.*

| | Neenah Paper | MNR | Neenah Paper and MNR | Neenah Paper and Overlapping Licensees | Total |
|---|---|---|---|---|---|
| Recommendations | 12 | 13 | 4 | 1 | 30 |
| Suggestions | 7 | 7 | 3 | 1 | 18 |
| Best Practices | 3 | - | - | - | 3 |

**Recommendation 30: Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Neenah Paper Company of Canada Sustainable Forest Licence to March 31, 2027.**

*Table 13. Summary of Recommendations, Suggestions and Best Practices.*

| **Principle 1: Commitment** |
|---|
| None |
| **Principle 2: Public Participation** |
| **Recommendations:**<br>1: The Ministry of Natural Resources must ensure that all Forest Management Planning Manual Requirements pertaining to notices and reports for Aboriginal involvement in forest management planning are met.<br>2: Corporate Ministry of Natural Resources must consider, in cooperation with Aboriginal representatives and the forest industry, the merits of developing measurable local level indicators and targets for the evaluation of progress with respect to Condition 34.<br>**Suggestions:**<br>1: The Ministry of Natural Resources should continue to pursue representation of remote tourism interests on the Geraldton Area Natural Resources Advisory Committee.<br>2: The Ministry of Natural Resources should ensure that the next Terms of Reference for the Geraldton Area Natural Resources Advisory Committee include provisions for a balance of interests and consideration for declaration of conflict of interest and procedures to deal with them.<br>3: The Ministry of Natural Resources should:<br>a) deliver the new Local Citizens Committee training package to the Geraldton Area Natural Resources Advisory Committee, and<br>b) determine with the Geraldton Area Natural Resources Advisory Committee the need for additional specific training and provide additional training as needed.<br>4: The Ministry of Natural Resources should support further opportunities for Local Citizens Committees in the Northwest Region to share ideas and knowledge.<br>5: The Ministry of Natural Resources should develop a file check list to ensure that all requirements pertaining to notices and reports for Aboriginal involvement in forest management planning are met. |
| **Principle 3: Forest Management Planning** |
| **Recommendations:**<br>3: Corporate Ministry of Natural Resources must ensure that when a selected management alternative causes loss of habitat for a species in the context of the forest management unit, that the habitat implications are examined for that species at the ecoregional scale.<br>4: The Ministry of Natural Resources must ensure that adequate resources are made available for the collection of values information in preparation for the 2010-2020 Kenogami Forest forest management plan.<br>5: The Ministry of Natural Resources must ensure that accurate map records, including the dates and locations of aerial values surveys, are maintained.<br>6: The Ministry of Natural Resources must make every effort to finalize woodland caribou values information data standards to allow these data to be entered into the Natural Resources Values Information System.<br>7: Neenah Paper must ensure that the silvicultural ground rules in the 2010-2020 Kenogami Forest forest management plan do not allow for aspen poplar to be left unutilized in aspen-dominated stands.<br>8: Neenah Paper must ensure that all forest management plan amendment submissions are certified by the forest management plan author.<br>9: Neenah Paper must include the name and formulation of the pesticide and a description of the forest area in the text of the aerial spray plan.<br>**Suggestions:**<br>6: Neenah Paper and the Ministry of Natural Resources should ensure, for the 2010-2020 Kenogami Forest forest management plan, that the planning team Terms of Reference include the recording of task team meetings, with attendance, concerns and resolutions.<br>7: Neenah Paper and the Ministry of Natural Resources should ensure that attendance by planning team members and Geraldton Area Natural Resources Advisory Committee members at Information Centres is recorded.<br>8: Neenah Paper should, during preparation of the 2010-2020 Forest Management Plan:<br>a) review and revise estimated yield curves and unharvested volume percentages;<br>b) revise estimated conversion of harvest area to non-forest for roads and landings;<br>c) review and revise areas reserved from harvesting as appropriate. |

*Table 13 Continued.*

| **Principle 3: Forest Management Planning (Continued)** |
|---|
| **Suggestions (Continued):**<br>9: Neenah Paper should expand its silvicultural objectives in the 2010-2020 Kenogami Forest forest management plan to:<br>a) consider past and current forest condition;<br>b) consider the potential for its silvicultural program to provide local economic benefits;<br>c) seek additional sources of silvicultural funding;<br>d) promote new technological advancements;<br>e) consider current and potential mill requirements.<br>10: The Ministry of Natural Resources should continue efforts to secure the native values information already collected through consultants for four First Nations communities, once the communities verify the mapped information produced and are comfortable with its release.<br>11: Forest Management Branch of the Ministry of Natural Resources should consider revising the requirements for reporting silvicultural expenditures in FMP Table 24, to match the requirements for reporting silvicultural expenditures to the Forest Renewal Trust.<br>12: Neenah Paper with assistance from the Ministry of Natural Resources, should review the sampling and methodology requirements to determine stand eligibility under Opportunity 1 of Article 11 of the Forest Accord, and proceed with harvest operations where appropriate. |
| **Principle 4: Plan Implementation** |
| **Recommendations:**<br>10: Neenah Paper and the Ministry of Natural Resources must ensure that values which are identified through the forest management planning process are protected through the Area of Concern planning process and documented in the forest management plan.<br>11: The Ministry of Natural Resources must ensure that proper documentation and inspection reporting, as well as all procedures in the report Towards Resolving Utilization Issues, "A Process to Manage Unutilized Fibre" are followed if wood is to be merchandized at the harvest site.<br>12: Neenah Paper and overlapping licensees must:<br>a) ensure all marketable wood is utilized;<br>b) work cooperatively to minimize any wastage of fibre;<br>c) maximize use of species deemed as unmarketable in the forest management plan;<br>d) ensure the procedures/processes in the report Towards Resolving Utilization Issues, "A Process to Manage Unutilized Fibre" are followed for wood deemed as unmarketable;<br>e) ensure that utilization is accurately reported on forest operations inspection reports.<br>13: Neenah Paper must:<br>a) monitor the area left untreated along roads and ensure they are treated;<br>b) regenerate tertiary roads whenever possible;<br>c) reflect any associated losses to the productive forest landbase in the forest management plan.<br>14: Neenah Paper must ensure that operations comply with the standards and guidelines of the Environmental Guidelines for Access Roads and Water Crossings and ensure that:<br>a) culverts are placed to ensure the free movement of fish and water;<br>b) grubbing is kept to an absolute minimum within 100 m of an Area of Concern water crossing;<br>c) right-of-way widths through Areas of Concern at water crossings are no wider than prescribed in the forest management plan.<br>15: Neenah Paper must re-establish boundaries for active Category 9 aggregate pits where the boundaries are no longer easily observed.<br>**Suggestions:**<br>13: Neenah Paper should ensure that the field application of all Area of Concern prescriptions are verified where the quality or resolution of supplementary aerial photography does not allow accurate assessment of harvest boundaries.<br>14: Neenah Paper should consider:<br>a) increasing the use of ground herbicide applications and/or manual tending, and<br>b) cleaning and thinning older plantations (15-25 years old).<br>15: Neenah Paper should ensure that road building material (i.e. gravel and sand) is not graded onto the surface of bridges. |

*Table 13 Continued.*

| Principle 5: Systems Support |
|---|
| **Suggestions (Continued):**<br>16: Neenah Paper should:<br>a) record the Silvicultural Ground Rules and Silvicultural Treatment Packages for completed projects and areas being declared Free-to-Grow, and<br>b) consider tracking changes to Silvicultural Ground Rules and Silvicultural Treatment Packages through the use of Geographic Information System silvicultural layers rather than paper records.<br>**Best Practice:**<br>1: Neenah Paper is commended on the high quality of its planting stock. |
| **Principle 6: Monitoring** |
| **Recommendations:**<br>16: The Ministry of Natural Resources must ensure that District Compliance Plans set forest compliance priorities for each forest management unit, using risk analysis and taking into account resource values, sensitivity of operating sites, and compliance history.<br>17: The Ministry of Natural Resources must devote sufficient resources to ensure targets in the District Compliance Plans are achieved.<br>18: Neenah Paper must prepare the five-year Forest Compliance Strategy and Annual Plan of Actions in accordance with the Guideline for Forest Industry Compliance Planning, including sections on training as well as roles and responsibilities for overlapping licensees.<br>19: Neenah Paper must ensure that:<br>a) all forest operations inspection reports meet the minimum data requirements, and<br>b) a Completed inspection report is carried out and submitted for all operation.<br>20: The Ministry of Natural Resources and Neenah Paper must ensure that timelines for reporting under the Forest Operations Information Program are met.<br>21: Neenah Paper must ensure that future Annual Compliance Plans identify training requirements and that associated training records are maintained.<br>22: Neenah Paper must make every effort to meet timelines for annual reporting requirements.<br>23: The Ministry of Natural Resources must ensure all communication efforts (meetings) are documented in the written report on negotiations with Aboriginal communities along with results of those efforts.<br>24: The Ministry of Natural Resources must ensure the written portion of the report on negotiations with Aboriginal communities accurately details the nature and value of the contracts shown in the tabular portion of the report.<br>25: Neenah Paper and all overlapping licensees must ensure that all merchantable timber used in road construction is measured and reported to the Ministry of Natural Resources for invoicing.<br>**Suggestions:**<br>17: Neenah Paper should review the methodology used for the Free-to-Grow program including:<br>a) how stocking is derived;<br>b) determining site class;<br>c) recognition of overstory tree species (for example cedar);<br>d) aerial versus ground survey methods (cost benefit analysis);<br>e) use of supplementary photographs to delineate stand boundaries;<br>f) Forest Information Manual requirements (inventory attributes, polygon size limitations etc).<br>18: Neenah Paper and overlapping licensees should consider the use of other materials for road construction (e.g. geotextile, unmarketable species).<br>**Best Practice:**<br>2: Neenah Paper is commended for its efforts and the thoroughness of its silvicultural treatment monitoring program.<br>3: Neenah Paper is commended for its Free-to-Grow survey efforts |
| **Principle 7: Achievement of Management Objectives and Forest Sustainability** |
| **Recommendations:**<br>26: Corporate Ministry of Natural Resources must provide a consistent methodology and suite of indicators to assess forest sustainability.<br>27: The Ministry of Natural Resources Regions must finalize forest units for all Crown Forests during the next forest management planning cycle. |

*Table 13 Continued.*

| **Principle 8: Contractual Obligations** |
|---|
| **Recommendations:**<br>28: The Ministry of Natural Resources and Neenah Paper, in cooperation with Tembec, must resolve the wood supply commitment to Tembec, Hearst, in Appendix E of the Sustainable Forest Licence.<br>29: Neenah Paper, with assistance from the Ministry of Natural Resources, must ensure Lecours Lumber in Hearst receives their pro rata share of the coniferous volume on the Kenogami Forest, as per Section 3.1 of the Sustainable Forest Licence. |
| **Conclusion** |
| **Recommendation:**<br>30: Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Neenah Paper Company of Canada Sustainable Forest Licence to March 31, 2027. |

# Appendix A

# Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report

# COMPARISON AND TREND ANALYSIS OF PLANNED VERSUS ACTUAL FOREST OPERATIONS REPORT

## KENOGAMI FOREST

Prepared by:

Hector Vincent, RPF
Planning Forester

Date Aug 27/05

## Introduction

This Comparison and Trend Analysis of Planned versus Actual Forest Operations, along with the associated tables, has been prepared by a Registered Professional Forester. I have endeavored to meet the requirements, or intent of the requirements detailed in Appendix C to the 2005 Independent Forest Audit Process and Protocol (IFAPP).

The Report of Past Forest Operations (RPFO) for the 2000-05 FMP and RPFO Summary Reports have not been completed and are, strictly speaking, no longer a requirement of the revised Forest Management Planning Manual, 2004(FMPM). Additionally, the Annual Report tables due in November 2005, are dependent upon completion of harvest depletion mapping and compilation of scaling returns for the 2004-05 operating year, and have yet to be completed.

This report provides a brief discussion of noteworthy items or occurrences in recent history, followed by the tabular and text requirements of a trend analysis report. A preliminary assessment of the achievement of FMP objectives and forest sustainability has also been included.

A number of references have been made in this report to text and tables from other sources, such as previous Timber Management Plans (TMPs), annual reports, audit reports, Report of Past Forest Operations (RPFO), Sustainable Forest Licence (SFL), etc. These other documents have been made available to the Audit Team and are not included in this Trend Analysis report.

## Miscellaneous Points of Interest

### Amalgamation and the Issuance of the Sustainable Forest Licence

The Kenogami Forest – Sustainable Forest Licence (SFL) No. 542256 was issued to Kimberly Clark Forest Products Inc., approved by Order-in-Council No. 893/97 on April 24, 1997 and signed by the Minister of Natural Resources on April 30, 1997. Prior to this date Kimberly Clark Forest Products Inc. operated under the terms of approved Timber Management Plans for the Longlac and Nakina Forests, Forest Management Agreements (FMA) No.'s 502700 and 502600 and the Geraldton Company Management Unit (CMU) Licence No. 327900.

The issuance of the SFL recognized the amalgamation of the two FMAs and the Geraldton CMU. Also included in the SFL is the northern portion of the former Onaman Lake Crown Management Unit (No. 775). A detailed legal description of the Kenogami Forest is contained the SFL document. This trend analysis and comparison (including all tables) has been prepared in the context of the Kenogami Forest.

The 1990-95 and 1995-2000 Timber Management Plans for the Longlac and Nakina Forests and the Geraldton Company Management Unit were prepared under the supervision and authored by Robert Forbes, Kimberly-Clark Forest Products Inc. The 2000-05 Kenogami Forest FMP was prepared by Hector Vincent, Kimberly-Clark Inc.

### Divestiture of Terrace Bay and Longlac Facilities

In February 2004, Kimberly-Clark Corporation announced its intention to divest ("spin-off") its non-core pulp and paper operations. Five locations were affected including the Terrace Bay mill and associated woodlands operations, a mill in Pictou, Nova Scotia and three mills in Wisconsin. These five operations became stand alone businesses, combined to form the publicly traded pulp and paper company – Neenah

Paper Inc. This transaction was completed on December 1, 2004. The legal name for the Terrace Bay and Longlac facilities is Neenah Paper Company of Canada, and the name commonly used will be Neenah Paper. The formal transfer of the SFL from Kimberly-Clark Inc. to Neenah Paper has not been completed at the time of submission of this Trend Analysis report. Depending on the context and nature of the subject matter, either Kimberly-Clark (KC) or Neenah Paper has been used in this report when referencing the SFL holder.

Conversion from 1974 to 1988 Forest Resources Inventory

The 1988 Forest Resources Inventory (FRI) was received in digital format during the latter stages of preparation of the 1995-2000 TMPs, but not with sufficient time to fully incorporate into the planning process, or in fact even be error checked. The 1995-2000 plans were essentially prepared using the 1974 FRI, with the knowledge that subsequent reporting requirements would be met using the 1988 FRI data. This FRI production was done cooperatively by Kimberly-Clark and MNR, with KC responsible for collecting and compiling FRI cruising data and submitting other update information to the MNR. MNR acquired the photography and produced final maps and data based on the information provided by KC. The 1988 inventory was ultimately compiled in 1993.

The 2000-05 FMP was the first plan prepared using the 1988 inventory. KC, using its Geographic Information System (GIS), digitally updated the FRI to account for natural or harvest depletions and accruals for the period from 1988 to the end of 1996\97. The time required for plan preparation necessitated harvest depletion projections (estimates) up to the start of the next planning term (April 1, 2000). The planning database was "frozen", during the summer of 1998, to provide consistency in SFMM modeling over the planning period.

Local Citizens Committee

The Geraldton Area Local Citizens Committee (LCC) was formed in 1994 and became involved in the latter stages of the 1995-2000 TMP preparation. Since that time this committee, representing a range of interests in forest management, contributed in all aspects of ongoing business relevant to the plans. Two members of the LCC participated on the 2000-05 planning team and the LCC were kept abreast of ongoing developments and asked for their inputs at regular monthly meetings during the preparation of the FMP. During the planning stages the LCC was involved in information centres and issue resolution. Through the implementation of the 2000-05 FMP, the LCC has been consulted for their opinions on such matters as FMP amendments, and their review of annual work schedules and annual reports. All incidents of non-compliance have been brought forward to the LCC.

The Local Citizens Committee, also known as the Geraldton Area Natural Resources Advisory Committee (GANRAC) also participated in the preparation of the 2005-10 FMP. Two representatives of GANRAC attended all the forest management planning sessions. The representatives provided reports to GANRAC at each scheduled meeting. Issues were discussed and the representatives conveyed concerns to the Planning Team. Each GANRAC member also had the opportunity to attend the First and Second Information Centres.

Losses Due to Natural Disturbances

Forest fires, insects and blowdown have caused significant damage over the term of the 2000-05 FMP. On an annual basis, the MNR must provide SFL holders with the gross areas affected by fire, as collected by the MNR's fire program. The MNR has provided Neenah Paper a spatial coverage of the natural disturbance perimeters, by disturbance type and the geographical extent of the area affected by the disturbance. Insects and other natural disturbances gross areas are also provided.

The total area affected over the 4-year period (2000-01 to 2003-04 AWS periods) and reported in Table AR-1 as area depleted by fire, amounts to 455 hectares. A total of 1,847 hectares has been reported as area depleted by insects and 4,633 hectares depleted by "Other" natural causes.

The most severe natural occurrence over the 5-year term of the FMP occurred on October 24, 2001, when a snow storm followed by strong winds swept across the area north of Lake Nipigon. The resulting damage was geographically widespread, from Sioux Lookout in the west, north as far as the Area of the Undertaking, and stretching to the northeast corner of the Kenogami Forest licence area in the east. Heavy accumulations of wet snow and ice in the upper portions of mature trees caused significant blowdown and snapping of treetops (at various heights), and to differing degrees of severity. In some areas, young plantations were also affected, bent over to ground level. The damage was spread across the most northern portion of the Kenogami Forest, but most dramatically in the northwest corner. Any mention of the "Nakina Blowdown" in subsequent text, is referring to this particular storm and/or the affected area within the Kenogami Forest boundaries.

Subsequent assessments confirmed the broad-scale geographical extent of the damage on the Kenogami Forest, and the fact that severity levels were extremely variable. It appeared that most forest types, ages and conditions had been affected. Professional forestry staff from forest industry, the MNR (Forest Health and Silviculture section) and Canada Forest Service have been in consultation, considering the large geographical area affected. A joint effort was undertaken during the summer of 2002 to assess and map the affected area into broad-scale damage severity levels.

The sheer size and impact of the Nakina Blowdown will undoubtedly bring many concerns to the forefront in the years to come. What are the implications for the forest fire hazard potential, for example, with a build-up of fine and coarse fuels? What are the long-term inventory impacts (with reduced stocking)? What are the future strategic modeling implications (if any)? Is there the increased likelihood for insect infestations such as the sawyer beetle, or other diseases?

Following the Nakina Blowdown storm, several blocks were approved for salvage harvest operations through the amendment process. Some harvest blocks were included in the FMP as regular harvest areas, but amended to adjust the required stumpage fees. Other blocks that were not part of the FMP were amended into the plan. Operations commenced in these blocks during the 2002-03 AWS period and continued through the 2003-04 AWS term. These particular salvage areas have been recorded in the "Other" column of natural causes in Table AR-1 (4,633 ha).

Based on the recent reports of forest health conditions generated by the Canadian Forest Service and MNR, there are no major insect infestations presently ongoing on the Kenogami Forest. However, significant tree mortality, particularly of balsam fir, has occurred from the spruce budworm infestations in the early 1990s. Salvage harvest areas were identified during the preparation of the 2000-05 FMP. A total of 1,829 hectares of the area damaged by insect causes has been salvaged during the 2000-2004 timeframe.

Previous FMA Reviews and Independent Forest Audits

The second 5-year review of the Longlac and Nakina Forests was conducted during the summer of 1995 to determine whether the obligations of Kimberly-Clark were satisfactorily performed under the terms of the FMAs, and to make a recommendation to the MNR whether the agreements should be extended. The review team made five recommendations following their review. In accordance with the former FMA review process and the Independent Forest Audit process, Kimberly-Clark developed an action plan to address each of the recommendations as well as a subsequent status report on the action plan.

An independent forest audit of forest management was subsequently conducted on the Kenogami Forest during the summer of 2000. The auditors identified twenty three recommendations to address non-compliances and shortcomings they considered noteworthy. The final audit report, action plan and status reports have been provided to the 2005 audit team.

Amendments

There were a total of 113 amendments on the Kenogami Forest over the 2000-05 FMP 5-year term. This included 3 minor amendments and 110 administrative amendments. There were no major amendments.

## Trend Analysis Text and Tables

Land Base Changes

Trend Analysis Table 1 provides a summary of total area under management, and is accompanied by four supporting graphs, showing:

- Areas of Crown Managed Land, by Land Class
- Areas of Production Forest, by Tree Species
- Areas of Water and Non-Forested Land
- Areas of Non-Productive and Protection Forest

The information in Table 1 indicates a significant decrease in Crown managed ownership over the past three planning terms. During the latter part of the 1990-1995 planning term a number of land withdrawals and severances took place including the severance of part of the original Nakina Forest (the creation of the current Nakina North SFL). In addition, there was the Aroland Reserve withdrawal, and the withdrawals of Sedgeman and Nakina Moraine Parks. These losses of area were not reconciled in tabular form in time for the 1995-2000 TMP submission, but have been reflected in the "2000-05" column in Table 1.

Land base changes relating to the Ontario Living Legacy were also incorporated in the 2000-05 FMP. These changes were made in accordance with the Direction for the Incorporation of Ontario Living Legacy (OLL) Decisions in Forest Management Plans Final Draft (July 5, 1999). The Ontario Living Legacy withdrawals affected a total area of 55,286 hectares on the Kenogami Forest, 36,933 hectares of which were classified as Crown managed production forest.

The Crown managed forest area has remained relatively stable over the 5-year period from 2000 to 2005. There have been minor shifts among the classifications of Barren and Scattered and the various working groups of the production forest with FRI updates, to account for natural or harvest depletions and the results of Free-To-Grow (FTG) assessments. The most significant changes during this period are actually in the water and non-forest land types. These differences were formalized when the new water, streams, management unit boundary and ownership layers were received from the MNR and incorporated into the planning inventory in preparation of the 2005-10 FMP.

## 2005 Independent Forest Audit

**Table 1 - Summary of Total Area Under Management**
**Management Unit: Kenogami Forest**

**Past and Current Plans - Crown Managed**

| | Area in Hectares | | | |
|---|---|---|---|---|
| | Past Plans | | Current | Future |
| Land Class | 1990-1995 | 1995-2000 | 2000-2005 | 2005-10 |
| Water | 214,922 | 217,070 | 174,787 | 158,138 |
| Non-Forested | 5,121 | 19,022 | 16,590 | 10,727 |
| Forested | | | | |
| Non-Productive | 184,378 | 163,081 | 123,341 | 127,987 |
| Protection Forest | 73,811 | 151,745 | 107,701 | 109,330 |
| Production Forest | | | | |
| B&S/NSR | 51,694 | 141,706 | 248,661 | 240,568 |
| Working Group | | | | |
| PJ | 161,788 | 147,784 | 114,019 | 118,617 |
| SP | 1,203,422 | 1,052,574 | 749,212 | 757,206 |
| B | 109,883 | 98,644 | 73,538 | 71,633 |
| BW | 109,914 | 66,761 | 58,870 | 62,267 |
| PO | 188,164 | 218,286 | 166,216 | 171,965 |
| CE | | 25,035 | 22,711 | 22,963 |
| L | | 10,541 | 8,501 | 9,366 |
| Total Production Forest | 1,824,865 | 1,761,331 | 1,441,728 | 1,454,585 |
| Total Forested Land | 2,083,054 | 2,076,157 | 1,672,770 | 1,691,902 |

**Notes:**
The data for the 1990-95 term was taken from Table 4.8.2 for each TMP (Longlac, Nakina, and Geraldton), then totalled.

The data for the 1995-2000 term was also taken from Table 4.8.2 for each TMP (Longlac, Nakina, and Geraldton), then totalled. This data is based on 1988 FRI, summarized 02/01/95.

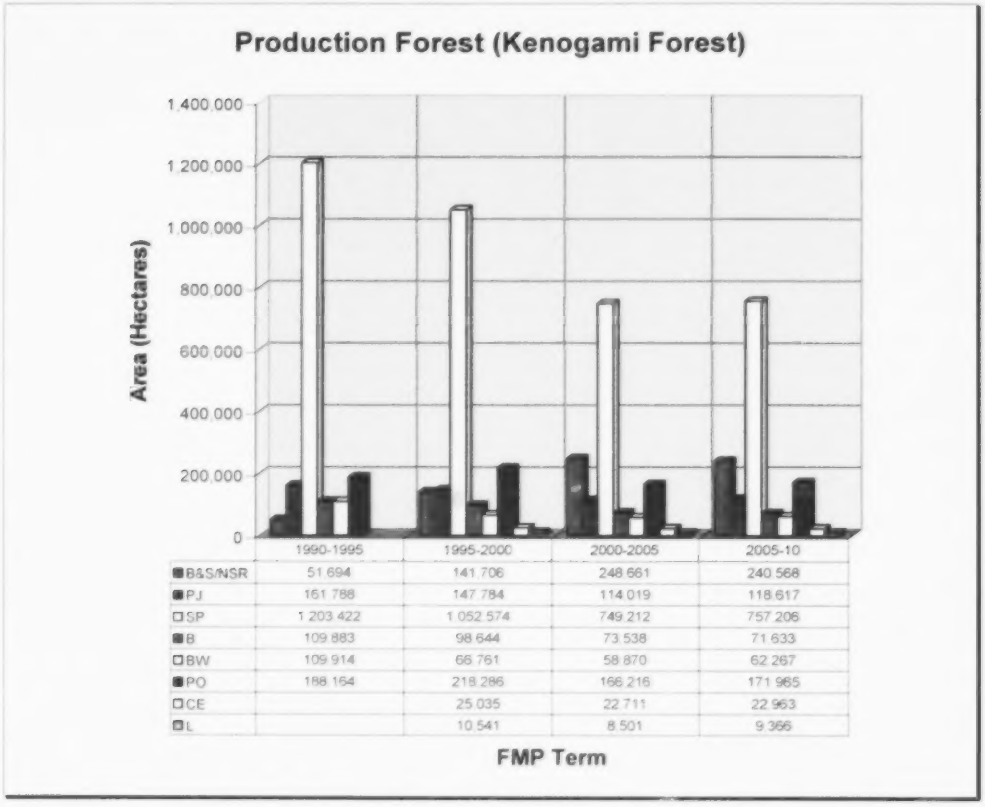
The sources of information for the 2000-05 term were Tables FMP-1 and FMP-2. This data is based on 1988 FRI, then updated and projected (August 1998) for 2000-05 FMP planning purposes.
The 2005-10 data is also based on 1988 FRI, then updated and projected (July 2004) for 2005-25 FMP planning purposes.

**Significant Landbase Changes since 1990:**
Nakina Forest severance (approx. 379,700 hectares)
Aroland Reserve withdrawal (20,279 hectares)
Nakina Morraine Park and Sedgeman Park withdrawals (5339 ha. and 3619 ha. respectively)
Ontario Living Legacy withdrawals
Onaman Lake CMU addition (8600 hectares)
SFL Corrections, updates and projections (1995-1998)

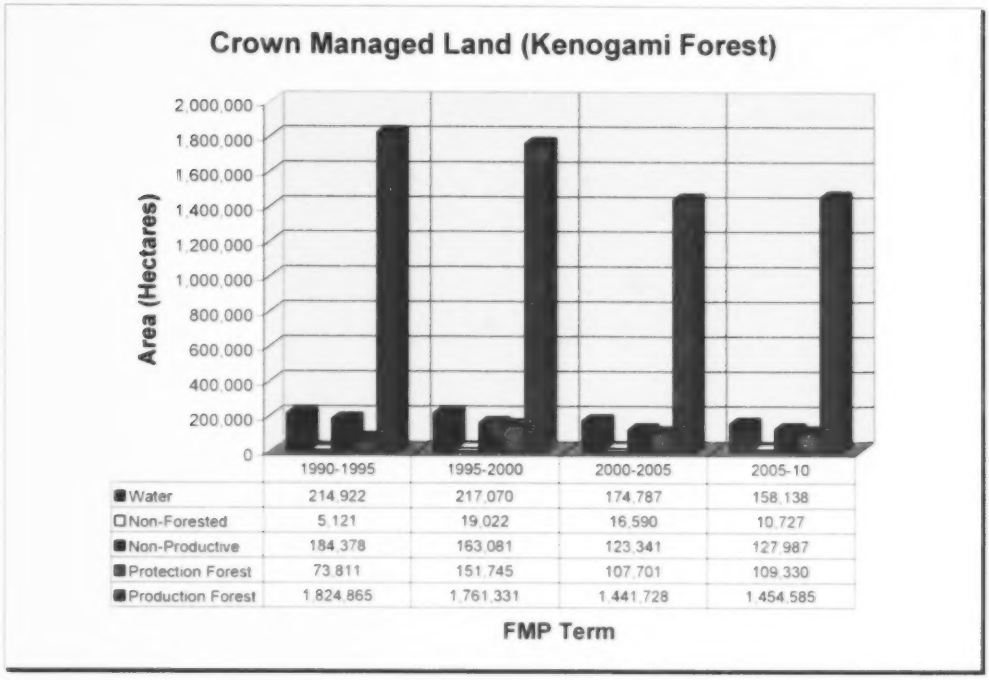
**Notable Irregularities:**
Between 1990-95 planning term and 1995-2000 planning term
CE and L not identified in the 1990-95 TMP tables. This area was previously classified as PF or S.C. IV.
Non-forested area increased due to inventory change. Much more area included as unclassified land.
PF increased due to new inventory classification.
B&S/NSR increased due to harvest impact between 1983 and 1988.
Working group differences due primarily to harvest impact and new inventory. A significant amount of BW was classed as PF.

Between 1995-2000 planning term and 2000-05 planning term
All water, non-forest, non-productive forest and PF decreased due to land withdrawals and land base corrections to the 1998 inventory.
B&S/NSR increased due to harvest between 1988 and 2000 projected depletions. Significant FTG data yet to be incorporated.
Working group differences due primarily to harvest impact, fire and land withdrawals.

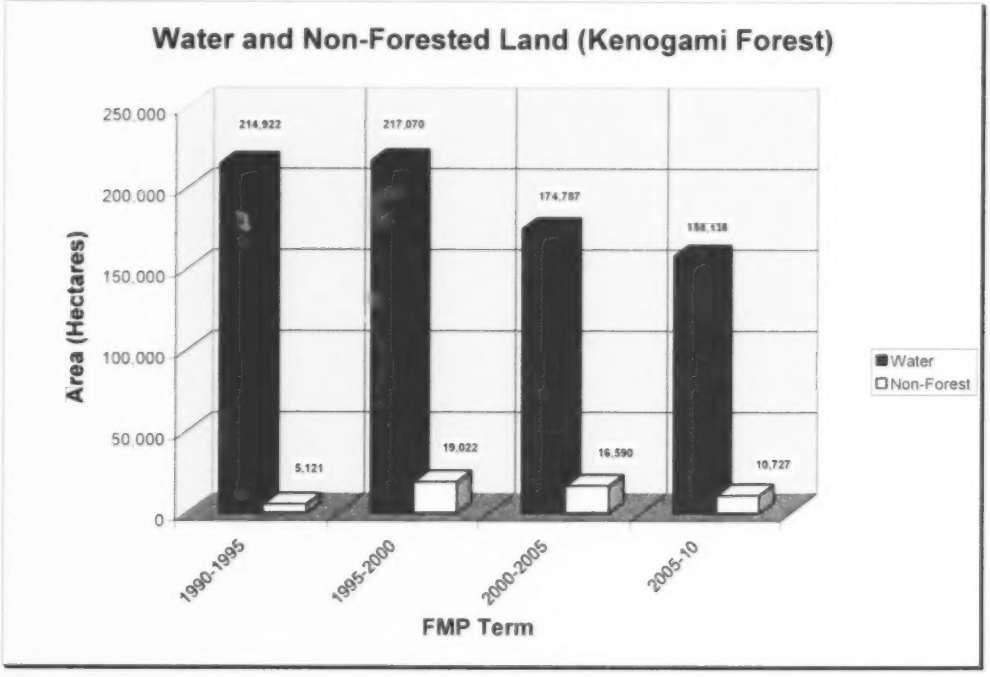
Between 2000-05 planning term and 2005-10 planning term
Minor changes of water and non-forested land types due to inventory corrections.

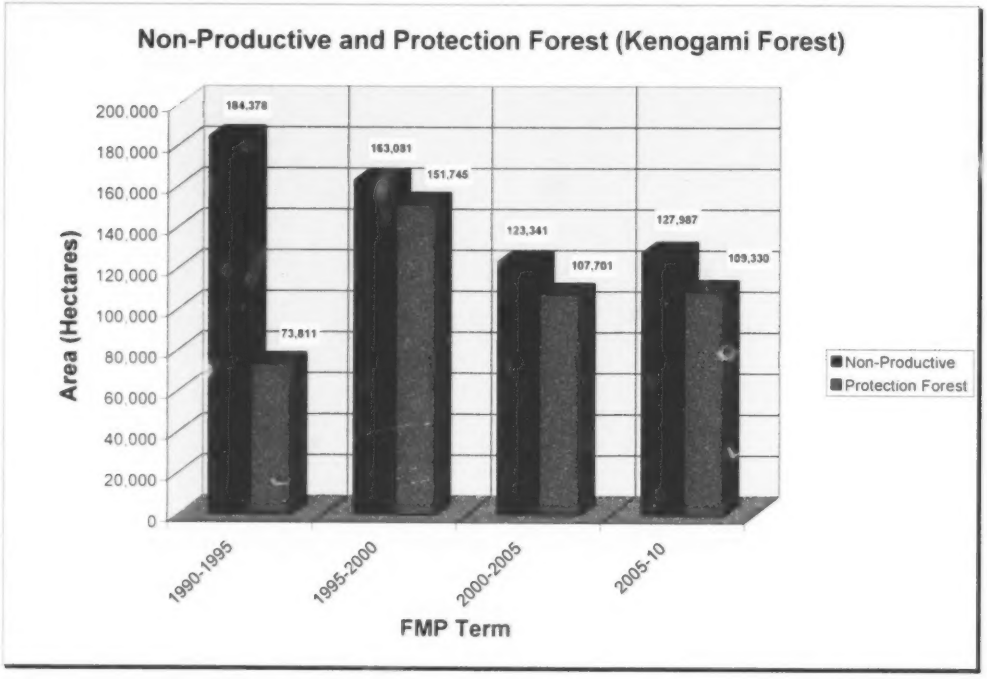



| | 1990-1995 | 1995-2000 | 2000-2005 | 2005-10 |
|---|---|---|---|---|
| B&S/NSR | 51,694 | 141,706 | 248,661 | 240,568 |
| PJ | 161,788 | 147,784 | 114,019 | 118,617 |
| SP | 1,203,422 | 1,052,574 | 749,212 | 757,206 |
| B | 109,883 | 98,644 | 73,538 | 71,633 |
| BW | 109,914 | 66,761 | 58,870 | 62,267 |
| PO | 188,164 | 218,286 | 166,216 | 171,965 |
| CE | | 25,035 | 22,711 | 22,963 |
| L | | 10,541 | 8,501 | 9,366 |




| | 1990-1995 | 1995-2000 | 2000-2005 | 2005-10 |
|---|---|---|---|---|
| Water | 214,922 | 217,070 | 174,787 | 158,138 |
| Non-Forested | 5,121 | 19,022 | 16,590 | 10,727 |
| Non-Productive | 184,378 | 163,081 | 123,341 | 127,987 |
| Protection Forest | 73,811 | 151,745 | 107,701 | 109,330 |
| Production Forest | 1,824,865 | 1,761,331 | 1,441,728 | 1,454,585 |




Non-Productive and Protection Forest (Kenogami Forest)
Area (Hectares)
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
184,378
73,811
163,091
151,745
123,341
107,701
127,987
109,330
1990-1995
1995-2000
2000-2005
2005-10
FMP Term
Non-Productive
Protection Forest

Forest Units and Ecosites

The forest units developed during the preparation of the 2000-05 FMP helped to define some specific management objectives and strategies. The classification of forest units facilitated analytical modeling to project the desired future forest conditions, to assess the achievement of objectives for various management alternatives, and in fact to ultimately determine whether the selected management alternative was sustainability. Forest units were developed by aggregating forest stands with similar ecological attributes such as soil texture and depth, species composition, site class, successional relationships (natural and post-harvest), growth and yield, and the ability to be managed under the same silvicultural system. Consideration was also given to economics, product type and topographical relief (upland versus lowland). The 2000-05 FMP planning team developed new forest unit descriptions based on the framework provided in Terrestrial and Wetland Ecosites of Northwestern Ontario, 1996.

The criteria used for the delineation of new forest units in the 2000-05 plan was a significant change from the criteria used in previous TMPs, and captured the MNR's direction to have a more ecologically-based representation. As can be seen in Trend Analysis Table 2 – *Description of Forest Units*, in previous Timber Management Plans forest units were based solely on working group, topographic relief and site class.

Ecosites are "an ecological landscape units (ranging in resolution from thousands to hundreds of hectares) comprised of relatively uniform geology, parent materials, soils, topography, and hydrology, occupied by a consistent complex of successionally related vegetation conditions". One of the criteria used for forest unit delineation was ecosite, or more specifically, the grouping of ecosites with similar forest cover. Further divisions within ecosite groupings, according to working group and stand composition, were used to define the different forest units.

An ecosite inventory was completed on the Kenogami Forest in 1997-98 by Ecological Services Group, Timmins, Ontario. The development of the ecosite inventory and classification exercise can be found in Section 2.3.3.2.9.1 of the plan. The interpretation of ecosites was based on FRI stand descriptions for the biotic (vegetation) components and the Northwestern Ontario Prime Land Classification (NWS&T, August 1993) for the abiotic (soil/site) components.

An ecosite predictive algorithm was developed to use the FRI as the primary test "decision maker" in the predictor, since it was the most accurate and finest scale information (1:20,000). The Prime Land Classification (PLC) information (NWO FEC S-type), at a scale of 1:250,000, was used in the model only when soil information is needed to distinguish ecosites. The primary test structure in the FRI data was by working group (WG). For each WG, the stand was sent through a procedure that tested the FRI attributes, then tested them against the soil criteria. Since the soil information was so broad scale, the FRI was always the primary test mechanism. Details of the ecosite predictive algorithm developed by ESG and KC are outlined in Appendix T.
There are twenty-two (22) ecosites on the productive forest land base on the Kenogami Forest. These ecosites were aggregated to reflect those sites that could be expected to have similar successional pathways and similar silvicultural treatments. The following list of aggregations was based on local knowledge and experience, as well as the ecosite descriptions outlined in Terrestrial and Wetland Ecosites of Northwestern Ontario, NWST Field Guide FG-02, May 1996:

- Conifer Dominated ecosites
- Hardwood-Fir-Spruce Mixedwood ecosites
- Fir-Spruce Mixedwood ecosites
- Sensitive Shallow Soil ecosites

## TABLE 2 - DESCRIPTION OF FOREST UNITS

**MANAGEMENT UNIT NAME: Kenogami Forest**
**PLAN TERM: 1985 to 2005**

**PLAN TERM: 1990 to 2010**

| Forest Unit Code | Forest Unit Name | Forest Type | Main Working Group | Site Types | Silvicultural System | FRI Parameters & Criteria | Additional Information |
|---|---|---|---|---|---|---|---|
| PJ | Jack Pine | Conifer | Jack Pine | All site classes | Clearcut | W.G. = Pj | |
| SUP | Spruce Upland | Conifer | Black Spruce | SC. X.1.2 | Clearcut | W.G. = (Sb or Sw) and (Pj+Bw+Bf+Po+Sw) >= 20% Site Class X. 1 or 2 | |
| SLOW | Spruce Lowland | Conifer | Black Spruce | SC. X.1.2 | Clearcut | W.G. = Sb and (Pj+Bw+Bf+Po+Sw) < 20% Site Class X. 1 or 2 | |
| S3 | Spruce Site Class 3 | Conifer | Black Spruce | SC.3 | Clearcut | W.G. = Sb and Site Class 3 | |
| B | Balsam Fir | Conifer | Balsam Fir | All site classes | Clearcut | W.G. = Bf | |
| PO | Poplar | Intolerant Hardwood | Poplar | All site classes | Clearcut | W.G. = Po | |
| Bw | White Birch | Intolerant Hardwood | White Birch | All site classes | Clearcut | W.G. = Bw | |

**PLAN TERM: 1995 to 2015**

| Forest Unit Code | Forest Unit Name | Forest Type | Main Working Group | Site Types | Silvicultural System | FRI Parameters & Criteria | Additional Information |
|---|---|---|---|---|---|---|---|
| PJ | Jack Pine | Conifer | Jack Pine | All site classes | Clearcut | W.G. = Pj | |
| SUP | Spruce Upland | Conifer | Black Spruce | SC. X.1.2 | Clearcut | W.G. = (Sb or Sw) and "upland" modifier Site Class X. 1 or 2 | Modifier designation based on photogramatist's interpretation |
| SLOW | Spruce Lowland | Conifer | Black Spruce | SC. X.1.2 | Clearcut | W.G. = (Sb or Sw) and "lowland" modifier Site Class X. 1 or 2 | Modifier designation based on photogramatist's interpretation |
| S3 | Spruce Site Class 3 | Conifer | Black Spruce | SC.3 | Clearcut | W.G. = Sb and Site Class 3 | |
| B | Balsam Fir | Conifer | Balsam Fir | All site classes | Clearcut | W.G. = Bf | |
| PO | Poplar | Intolerant Hardwood | Poplar | All site classes | Clearcut | W.G. = Po | |
| Bw | White Birch | Intolerant Hardwood | White Birch | All site classes | Clearcut | W.G. = Bw | |

## TABLE 2 - DESCRIPTION OF FOREST UNITS

**MANAGEMENT UNIT NAME: Kenogami Forest**
**PLAN TERM: 2000 to 2020**

| Forest Unit Code | Forest Unit Name | Forest Type | Main Working Group | Ecosites (ES) Primary | Ecosites (ES) Secondary | Silvicultural System | FRI Parameters & Criteria | Additional Information |
|---|---|---|---|---|---|---|---|---|
| Bw | White Birch | Intolerant Hardwood | White Birch | 12.2, 16, 19, 23, 28, 29, 33 | 21, 27, 32 | Clearcut | W.G. = Bw | Generally a mixedwood forest with greater than 50% hardwood component |
| ConMx | Conifer Mixedwood | Mixedwood | Balsam Fir and Black Spruce | 21, 27, 32 | 12.1, 14, 16, 19, 20, 22, 23, 25, 26, 31 | Clearcut | W.G. =Bf, or W.G. = Sb, or W.G. = Pj, or W.G. = Sw and (Sb+Sw+Pj) < 70% | Site Class X. 1, 2 or 3 |
| OC | Other Conifer | Conifer | Cedar | 36, 37 | 12.2, 17 | Clearcut | W.G. =La, or W.G. = Ce or (W.G. =Sb and S.C. = 4) | |
| PFR | Production Forest Reserve | Mixedwood | Black Spruce | 12.1 | | Clearcut | MNR Stand Type 25, 26, 27 or 28 | Sensitive shallow soil ecosites typed as PFR regardless of forest cover (species) |
| | | | White Birch | 12.2 | | | | |
| PJ | Jack Pine | Conifer | Jack Pine | 13, 20, 22 | 12.1, 14, 25.1, 26.1 | Clearcut | W.G. = Pj and (Pj+Sb+Sw) >= 70% | Site Class X. 1, 2, or 3 |
| PoMix | Poplar Mixedwood | Mixedwood | Poplar | 16, 19, 23, 28, 29, 33 | 12.2, 14, 21, 27, 32 | Clearcut | W.G. = Po | Site Class X. 1, 2, or 3 |
| Slow | Spruce Lowland | Conifer | Black Spruce | 36, 37 | 22, 31 | Clearcut | W.G. = Sb and (Sb+Sw+Pj+Ce+L) >= 70%, Site Class X. 1 or 2 | "Lowland" modifier (L) designation at time of FRI photo interpretation |
| S3 | Spruce Site Class 3 | Conifer | Black Spruce | 26, 31, 36, 37 | 12.1, 14, 20 | Clearcut | W.G. = Sb and (Sb+Sw+Pj+Ce+L) >= 70%, Site Class 3 | Lowland ecosites and Upland ecosites |
| Sup | Spruce Upland | Conifer | Black Spruce | (P) 20 | 12.1, 21, 22, 25.2, 26.2, 27, 31, 32 | Clearcut | W.G. = Sb, Sw, or SpAll and (Sb+Sw+Pj) >= 70%, Site Class X. 1 or 2 | Upland modifier (U) designation at time of FRI photo interpretation |

**TABLE 2 - DESCRIPTION OF FOREST UNITS**

**MANAGEMENT UNIT NAME: Kenogami Forest**

**PLAN TERM: 2005 to 2025**

| Forest Unit | | Forest | Main | Ecosites (ES) | | Silvicultural | FRI Parameters | Sort |
|---|---|---|---|---|---|---|---|---|
| Code | Name | Type | Working Group | Major | Rare | System | & Criteria | Order |
| BfDom | Balsam Fir Dominated | Conifer | Balsam Fir, Black Spruce | 27 21 12.2 32 | 23 12.1 19 22 | Clearcut | BF>=4 and (BF+SW+SB+PJ) >=5 | 1 |
| OCLow | Other Lowland Conifer | Conifer | Cedar, Larch, Black Spruce | 37 34 36 | 17 | Clearcut | (CE+LA>=5 or WG = CE, LA) and (PR+PW+PJ+SW+BW =<2) | 2 |
| SpLoR | Spruce Lowland-Rich | Conifer | Black Spruce | 36 22 31 37 | 20 | Clearcut | (UL = 'L' **and** (SB+CE+LA)>=7 **and** (BF+BW+PJ+PO)<=2) and (SC=X, 1, 2) **or** ((SB+CE+LA=10) **and** (CE+LA)>=1 **and** (SC=X, 1, 2)) **or** ((ES=22, 31) **and** (PR+PW+PJ+SW)<1 **and** (BF+PO+BW)<=2 **and** (WG=SB or SB>=5) **and** (SC=X, 1, 2)) **or** ((ES=34, 35, 36, 37) **and** (BF+PO+BW+PJ+SW)<=2 **and** (WG=SB or SB>=5) and SC=X,1, 2)) | 3 |
| SPoor | Spruce Poor | Conifer | Black Spruce | 36 22 37 34 31 20 | 26 12.1 | Clearcut | (UL=L and SC=3,4) **or** ((SB+CE+LA)=10 **and** SC=3, 4) **or** ((ES=12,1,14,22, 31 **and** PR+PW+PJ+SW<=2) **and** (BF+PO+BW)<=3 **and** (SB>=7) **and** (SC= 3,4)) **or** ((ES=34, 35, 36, 37) **and** (BF+PO+BW+PJ+SW)<=3 **and** (SB>=7) **and** SC= 3,4)) | 4 |
| PoPur | Poplar Pure | Hardwood | Poplar | 19 28 16 12.2 | 23 33 | Clearcut | PO>=7 and BF =<2 | 5 |
| SpPur | Spruce Pure | Conifer | Black Spruce | 20 22 25 12.1 26 31 | 14 21 27 | Clearcut | (SB+SW>=7) and (PO+BW<=2) and BF<=2 | 6 |
| PjPur | Jack Pine Pure | Conifer | Jack Pine | 13 20 22 25 | 26 | Clearcut | PJ>=6 and (PO+BW<=2) and BF<=2 | 7 |
| BwDom | White Birch Dominated | Hardwood | White Birch | 12.2 19 23 16 | 29 | Clearcut | BW >=6 and (PO+BW) >=7 | 8 |
| PjSMx | Pine-Spruce Mixedwood | Conifer | Black Spruce, Jack Pine | 20 31 22 25 12.1 21 26 14 | 27 | Clearcut | (PR+PW+SB+PJ+SW+BF)>=7 and BF<=2 and (PO+BW)<=2 | 9 |
| ConMx | Conifer Mixedwood | Mixedwood | Black Spruce, Jack Pine | 21 20 31 12.1 25 19 14 16 | 23 12.2 32 26 | Clearcut | (PR+PW+SB+ SW+PJ+BF+CE+LA) >=6 | 10 |
| HrdMx | Hardwood Mixedwood | Mixedwood | Poplar, White Birch | 19 23 12.2 16 | 33 | Clearcut | (PO+BW+MH+UH+LH) >=5 | 11 |

Upon review, the 2005-10 planning team recognized that there were some shortfalls in the forest units used in the 2000-05 FMP. Accordingly, the classification criteria used for the 2005-10 FMP were changed significantly to facilitate the planning of more appropriate and accurate silvicultural treatments. These changes also facilitated strategic modeling assumptions related to forest dynamics (such as growth and yield, succession, and natural disturbance).

The forest units selected in the 2005-10 plan also conformed much more closely to the Northwest Region (NWR) Standard Forest Units. The description of the new forest units, in terms of code, name, ecosite, main working group and FRI sorting criteria has been presented in Table 2. The detailed rationale for the classification of forest units used in the 2005-10 FMP has been is provided in Part 1, Section 1.3.3.1 of the Analysis Package (Appendix A of the 2005-10 FMP).

Summary of Planned and Actual Harvest Volumes

Trend Analysis Table 3 –provides a summary of planned and actual harvest volumes for the past three planning terms. As footnoted in Table 3, the source of planned harvest volumes for 2000-05 was Table FMP-21. The planned volumes for 1990-95 were taken from TMP Table 4.18.1. The planned volumes for 1995-2000 however, were taken from Section 4.8.1.1.3 in the TMP text, and do not correspond exactly with volumes presented in TMP Table 4.18.1. Unfortunately, the planned volumes for this period were only available as "conifer" or "poplar", and were not broken down on a species basis. Background information concerning the calculation of the Maximum Allowable Depletion (MAD) and the determination of wood supply, while recognizing major land base revisions and problems associated with the new (1988) FRI, was provided in the Comparison and Trend Analysis Report for the 1995-2000 Independent Forest Audit. This information was also provided in detail in Section 3 of the 1985-1990 TMPs and Section 4.10 of the 1990-1995 and 1995-2000 TMPs.

The actual harvest volumes presented in Table 3 for the 2000-05 period have been taken from annual reports and annualized for the 4-year period for which information is available (2000 to 2004). The actual Spruce/Pine/Fir volume utilized by all licensees (777,113 $m^3$) amounted to 60% of the planned volume. Similarly, the actual poplar volume (164,011 $m^3$) amounted to 59% of the planned forecast. In addition, there was approximately 290,000 $m^3$ of bush inventory as well as a relatively small amount of birch also utilized, resulting in a combined realization of 64% of planned volumes for all species in total.

As presented in the next section and evident in Table 4 and the accompanying graphs, the difference between the planned and actual harvest areas was not overly significant. Of primary concern, and as first identified in the 2000-01 annual report, was the drastic volume differences being realized, and more specifically the volume yields ($m^3$/hectare).

As discussed in each annual report covering the 2000-05 FMP period and in the RPFO for the 1995-2000 FMP, it appears that a number of factors have contributed to the lower than planned yields, including:

- Damage caused by the most recent spruce budworm infestation was much worse than anticipated.
- More single stem mortality was apparent across the management unit, perhaps the result of abiotic factors such as drought or other causes.
- The yield curves used in strategic planning (SFMM) for a number of forest units, overstated the projected volumes.
- The Kimberly-Clark internal volume table to which past cruise data was applied, for growth and yield estimates of earlier TMPs, is no longer valid.
- MNR weight factors are applied over such a large geographic area. It is quite likely that local variances have occurred, contributing to differences between planned and actual volume results.
- The Nakina Blowdown storm affected many of the 2000-05 allocations.

# 2005 Independent Forest Audit

**Table 3 - Summary of Planned and Actual Harvest Volumes**
**Management Unit: Kenogami Forest**

**Average Planned Annual Harvest Volumes**

| | Volume in '000's m3 | | |
|---|---|---|---|
| | Past Plans | | Current |
| Species | 1990-95 | 1995-2000 | 2000-05 |
| Spruce | 959,928 | | 999,119 |
| Pine | 362,897 | | 188,740 |
| Balsam Fir | 116,626 | | 114,547 |
| Larch | | | 891 |
| Cedar | | | 0 |
| Sub-total | 1,439,451 | 1,183,599 | 1,302,405 |
| Poplar | 405,868 | | 278,715 |
| Birch | 0 | | 3,209 |
| Sub-total | 405,868 | 365,893 | 281,924 |
| Total | 1,845,319 | 1,549,492 | 1,584,329 |

**Actual Harvest Volumes**

| | Volume in '000's m3 | | |
|---|---|---|---|
| | Past Plans | | Current |
| Species | 1990-95 | 1995-2000 | 2000-05 |
| Spruce | 857,683 | 660,324 | 599,168 |
| Pine | 232,718 | 220,318 | 124,495 |
| Balsam Fir | 107,681 | 44,064 | 51,715 |
| Larch | | 1,661 | 1,669 |
| Cedar | | 29 | 65 |
| Sub-total | 1,198,082 | 926,395 | 777,113 |
| Poplar | 346,845 | 189,279 | 164,011 |
| Birch | 5,872 | 1,462 | 1,010 |
| Sub-total | 352,716 | 190,741 | 165,022 |
| Total | 1,550,798 | 1,117,136 | 942,134 |

**Notes:**

The source of Actual Harvest Volumes for the 2000-05 period were provided from annual reports, averaged for the 4-year period 2000 to 2004.

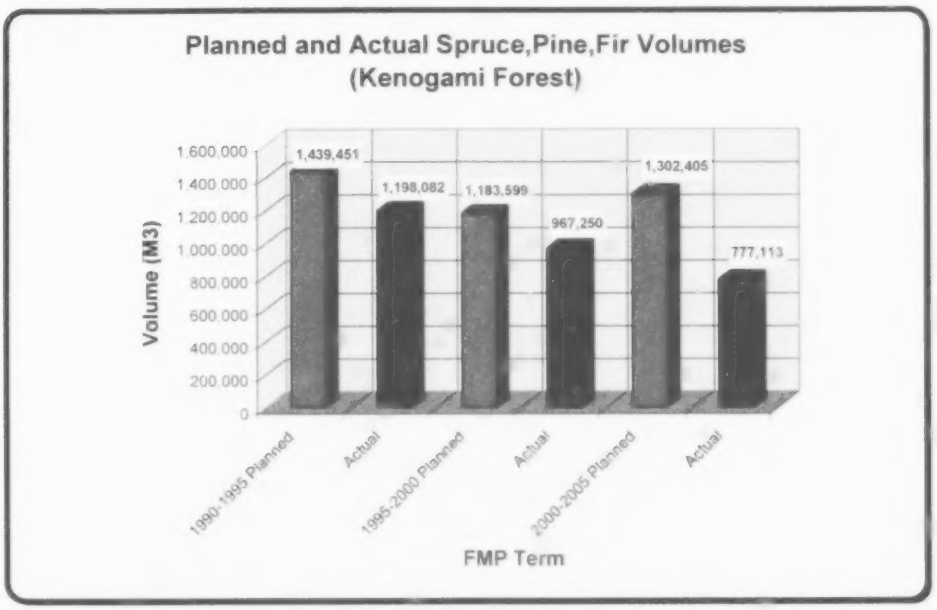
Tables RPFO-4 and RPFO-4a provided the Actual Harvest Volumes for 1995-2000 period. Salvage volumes have been included in the actual harvest volumes reported.

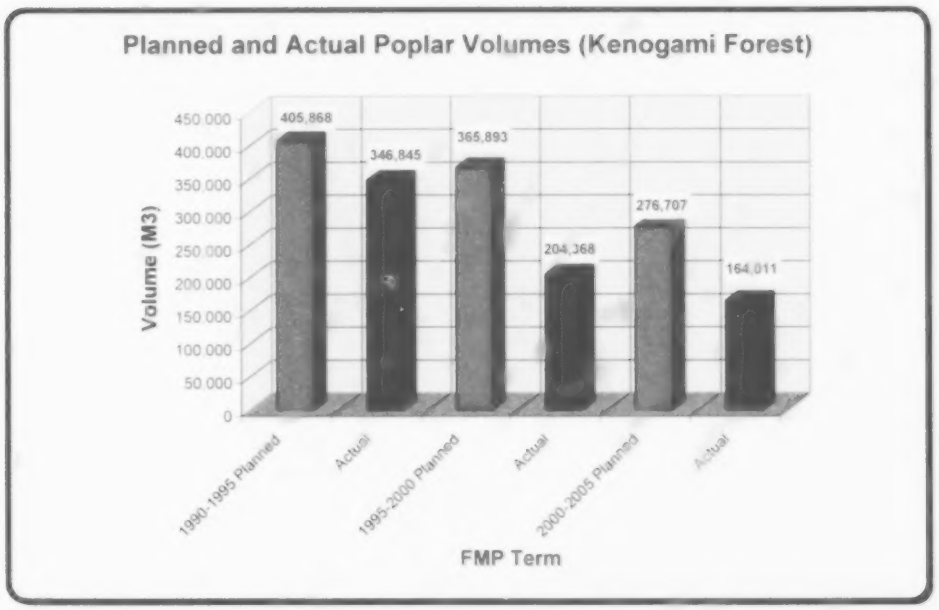
The source of Actual Harvest Volumes for the 2000-05 period are from Table RPFO-4.

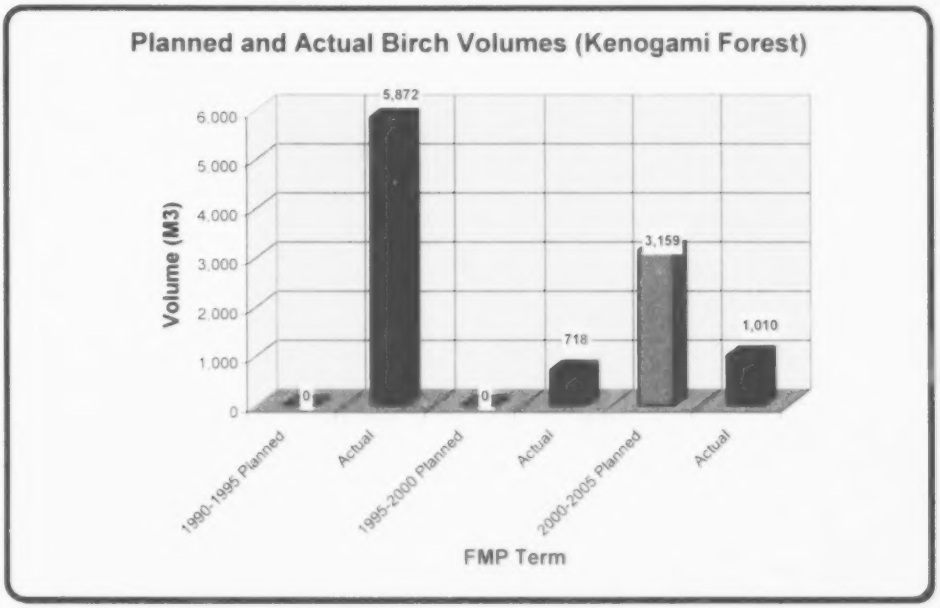
The Planned Harvest Volumes for the 2000-05 term were provided from Table FMP-21.

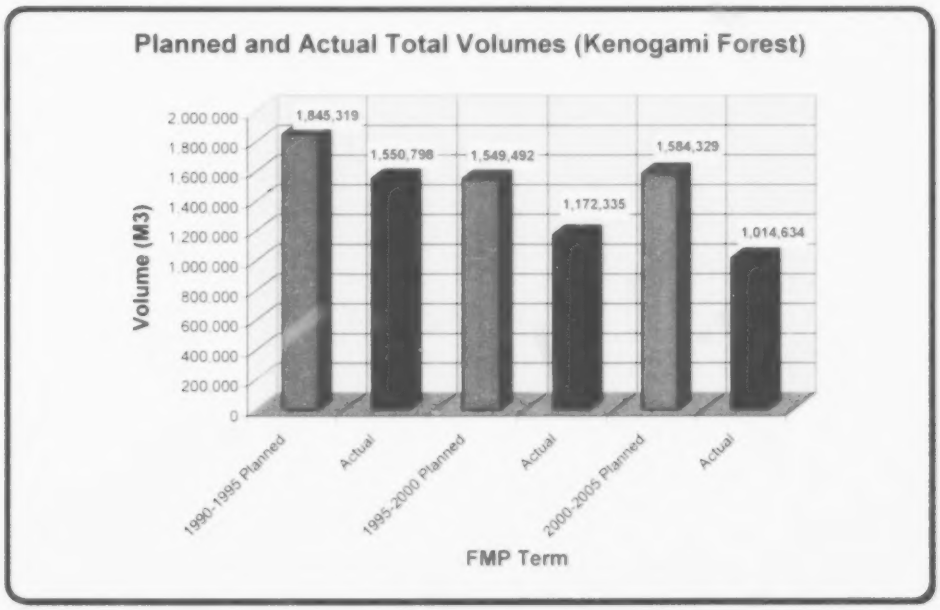
1995-2000 Planned Harvest Volumes were taken from Section 4.8.1.1.3 in TMP text. These volumes were estimates based on removal of 39% of original Nakina land base, and differ from the volumes reported in TMP Table 4.18.1.

The Planned Harvest Volumes for the 1990-95 term were provided from TMP Table 4.18.1.


Planned and Actual Spruce,Pine,Fir Volumes
(Kenogami Forest)
Volume (M3)
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1,439,451
1,198,082
1,183,599
967,250
1,302,405
777,113
1990-1995 Planned
Actual
1995-2000 Planned
Actual
2000-2005 Planned
Actual
FMP Term


Planned and Actual Poplar Volumes (Kenogami Forest)
Volume (M3)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
405,868
346,845
365,893
204,368
276,707
164,011
1990-1995 Planned
Actual
1995-2000 Planned
Actual
2000-2005 Planned
Actual
FMP Term


Planned and Actual Birch Volumes (Kenogami Forest)
Volume (M3)
6,000
5,000
4,000
3,000
2,000
1,000
0
0
5,872
0
718
3,159
1,010
1990-1995 Planned
Actual
1995-2000 Planned
Actual
2000-2005 Planned
Actual
FMP Term


Planned and Actual Total Volumes (Kenogami Forest)
Volume (M3)
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1,845,319
1,550,798
1,549,492
1,172,335
1,584,329
1,014,634
1990-1995 Planned
Actual
1995-2000 Planned
Actual
2000-2005 Planned
Actual
FMP Term

Summary of Planned and Actual Harvest Areas

The actual harvest areas in Trend Analysis Table 4 have also been annualized for the 4-year period for which information is available. Table 4 also includes planned and actual salvage harvest areas. As such, the sources of information for planned area were Tables FMP-22 and FMP-22a (and not Tables FMP-18 which did not include salvage).

The planned areas in Table 4 have been updated to reflect significant changes associated with amendments. As discussed previously, there have been three minor amendments over the 2000-05 FMP period. Two of these minor amendments (Coded # H-109 and # H-161) and one administrative amendment (Amendment Code # H-97) have dealt specifically with the Nakina Blowdown. Amendment # H-97 involved reclassifying approximately 5,578 hectares of originally planned regular harvest area (reductions in area) into the salvage harvest category (increases in area). Minor Amendments # H-109 and # H-161 on the other hand, involved strictly the identification of 2,853 hectares of new salvage area. The third minor amendment (Coded # H-121) resulted in the approval to harvest 2,804 hectares of contingency area. There have been numerous administrative amendments over the planning term, but involved a relatively small amount of area that has not been reflected in updated FMP tables.

The graph included with Table 4 (for all forest units in total) demonstrates that the actual harvest depletions have become somewhat closer to the planned harvest area over the past three planning terms. The annualized actual harvest areas (12,461 hectares) amount to 86.1% of updated planned areas (with changes of amendments reflected). It is worth noting that the actual harvest areas do not include area depleted as "bypass", while planned harvest areas do.

A series of graphs have also been prepared for a comparison of planned versus actual harvest on a forest unit basis. These graphs help to highlight some challenges associated with certain forest units with respect to markets, terrain and seasonal constraints, among other factors. For example, the differences between planned and actual harvest area in the upland conifer-dominated forest units (Jack Pine, Spruce Upland and Conifer Mixedwood) and the Poplar forest units are not as great as in other forest units. The forest units with greatest difference between planned and actual were White Birch and Other Conifer in particular, are due to a lack of markets for birch and cedar (and larch to a lesser extent). Terrain was the most significant factor in differences between planned and actual in the PFR forest unit (with increased bypass area realized, and influenced to a lesser degree with higher road construction costs). Increased bypass area was also evident within the Spruce Site Class 3 stands, where merchantability (undersize) was a contributing factor.

The challenge to maintain levels of employment on a year-round basis became more difficult during the 2000-05 period. This is in large part due to the reduced proportion of planned harvest area in the typical frost-free, "summer" forest units (upland conifers and hardwoods). Conversely, this has resulted in a proportional increase of allocations in the "winter" forest units (Spruce Lowland, Spruce Site Class 3 and Other Conifer). Although the depletion information is not yet available for the 2004-05 AWS period, increased efforts were taken during the last winter of the FMP to capture approved available volumes. It is expected that the differences between planned and actual harvest area for the 5-year term will be reduced.

## Trend Analysis Table 4

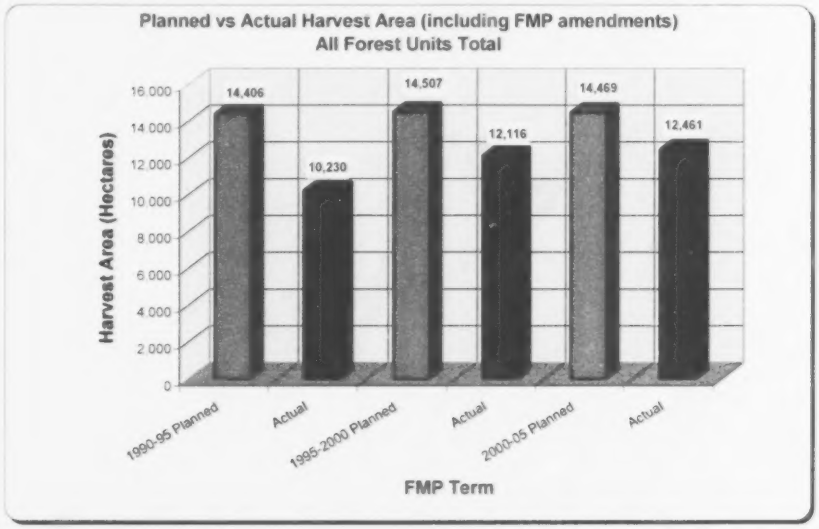
## SUMMARY OF PLANNED AND ACTUAL HARVEST AREAS - Kenogami Forest

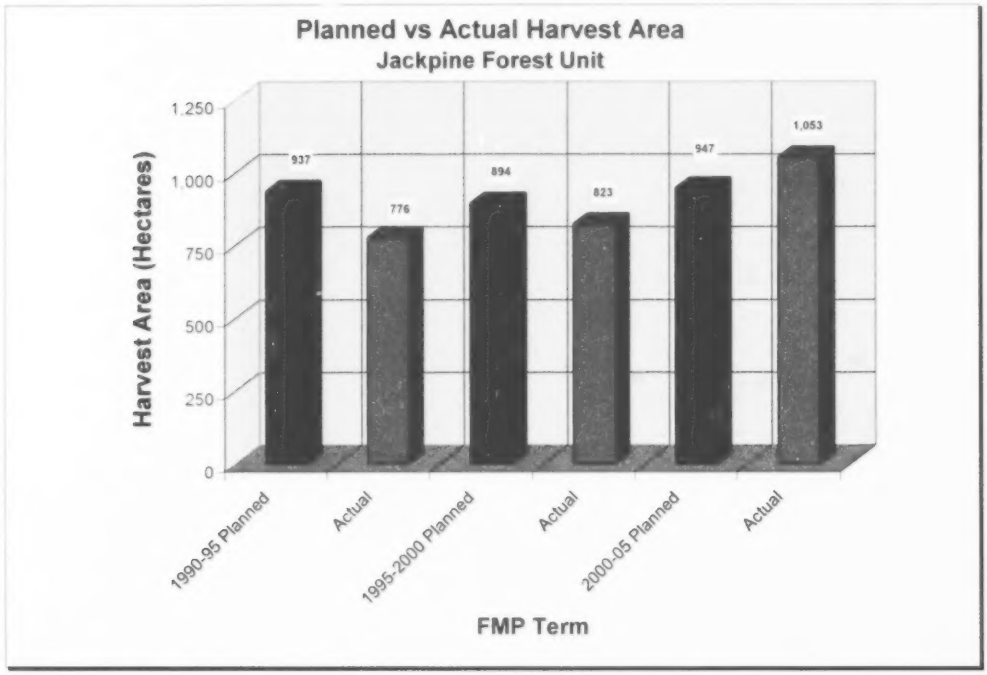
**Planned Areas Include Changes Associated with salvage and contingency amendments.**

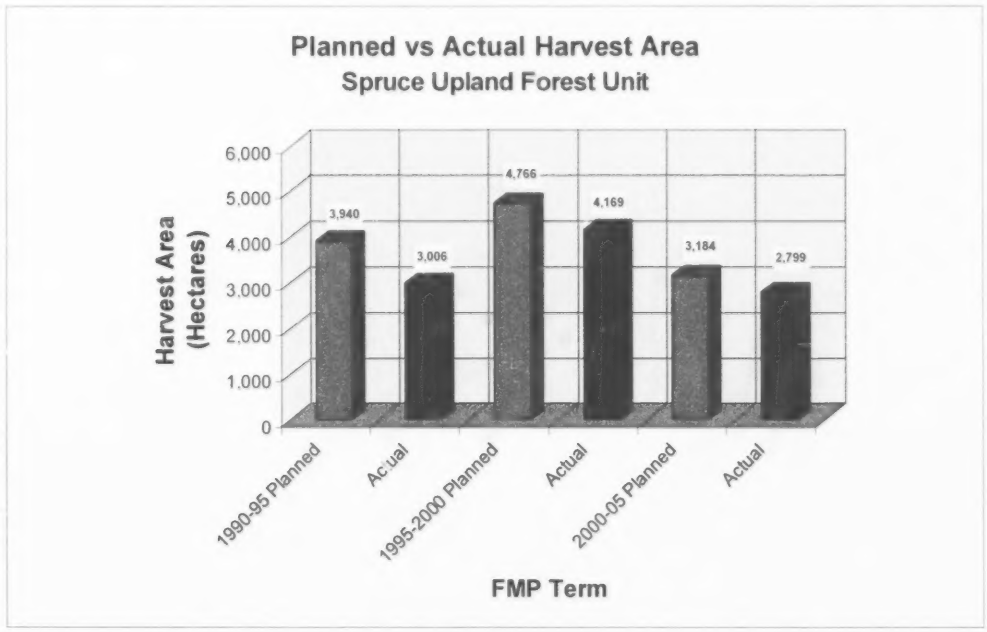
| Planned Annual Harvest Area | | | | Actual Annual Harvest Area | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area in Hectares | | | Area in Hectares | | | | | |
| | Past Plans | | Current | Past Plans | | | | Current | |
| Plan Term | 1990-1995 | 1995-2000 | 2000-2005 | 1990-1995 | | 1995-2000 | | 2000-2005 | |
| Forest Unit | | | | Harvest | Natural | Harvest | Natural | Harvest | Natural |
| PJ | 937 | 894 | 947 | 776 | 0 | 823 | 743 | 1,053 | 578 |
| ConMx | | | 1,903 | | | | | 1,467 | 276 |
| SUP | 3,940 | 4,766 | 3,184 | 3,006 | 28 | 4,169 | 2,748 | 2,799 | 506 |
| SLOW | 3,532 | 2,031 | 2,471 | 1,886 | 114 | 1,963 | 587 | 2,232 | 162 |
| S3 | 1,863 | 2,393 | 2,397 | 1,381 | 50 | 2,197 | 451 | 1,984 | 202 |
| B | 1,022 | 1,137 | | 561 | 7 | 795 | 1,265 | | |
| PO | 2,576 | 3,027 | 2,437 | 2,231 | 1 | 2,425 | 488 | 2,204 | 125 |
| Bw | 536 | 259 | 321 | 388 | 0 | 149 | 312 | 155 | 27 |
| OC | | | 211 | | | 316 | 68 | 117 | 2 |
| PFR | | | 597 | | | | | 450 | 107 |
| Total Area | 14,406 | 14,507 | 14,469 | 10,230 | 200 | 12,116 | 6,662 | 12,461 | 1,985 |

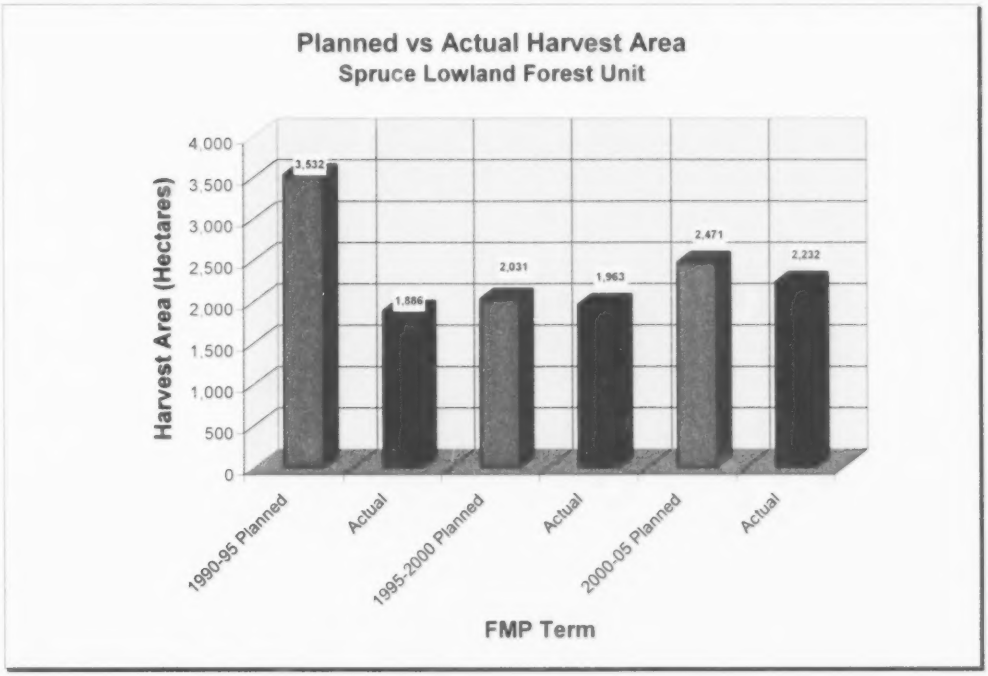
Tables FMP-22 and FMP-22a (updated) were used as the source for planned harvest area for 2000-05 FMP term.
Table RPFO-2 used for planned and actual harvest areas for 1990-95 and 1995-2000 periods.
Table AR-1 was used as the source for actual harvest area for the 2000-05 term. This was provided for four AWS terms only (2000-01 to 2003-04)

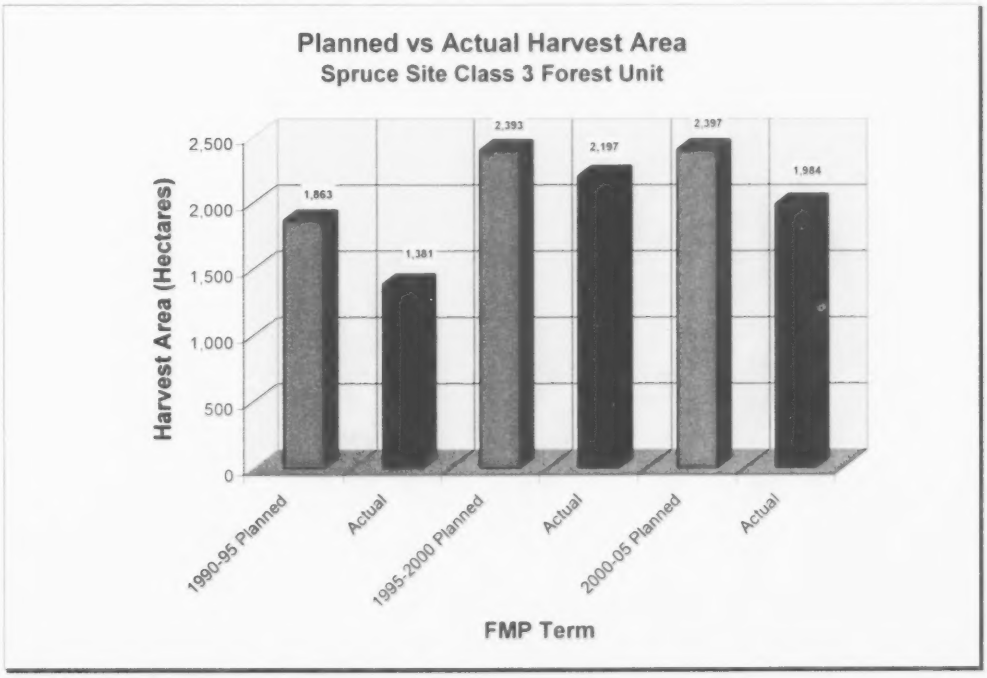
OC (Other Conifer - Ce and La) was reported as depleted area during the 1995-2000 TMP period. This forest unit was not formally allocated as part of the AHA until the 2000-05 FMP.

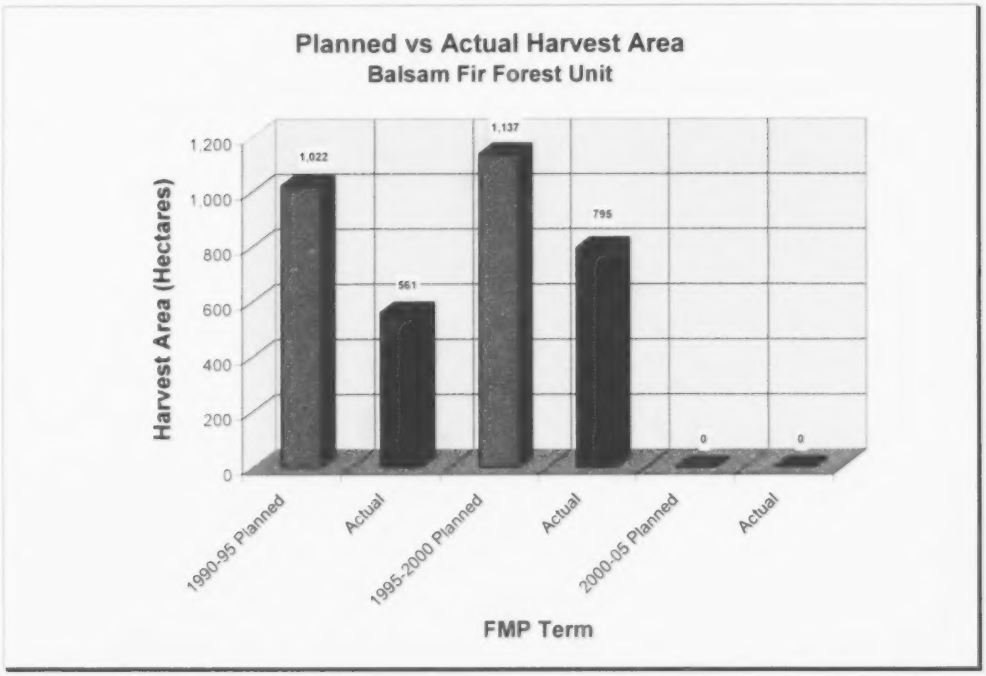


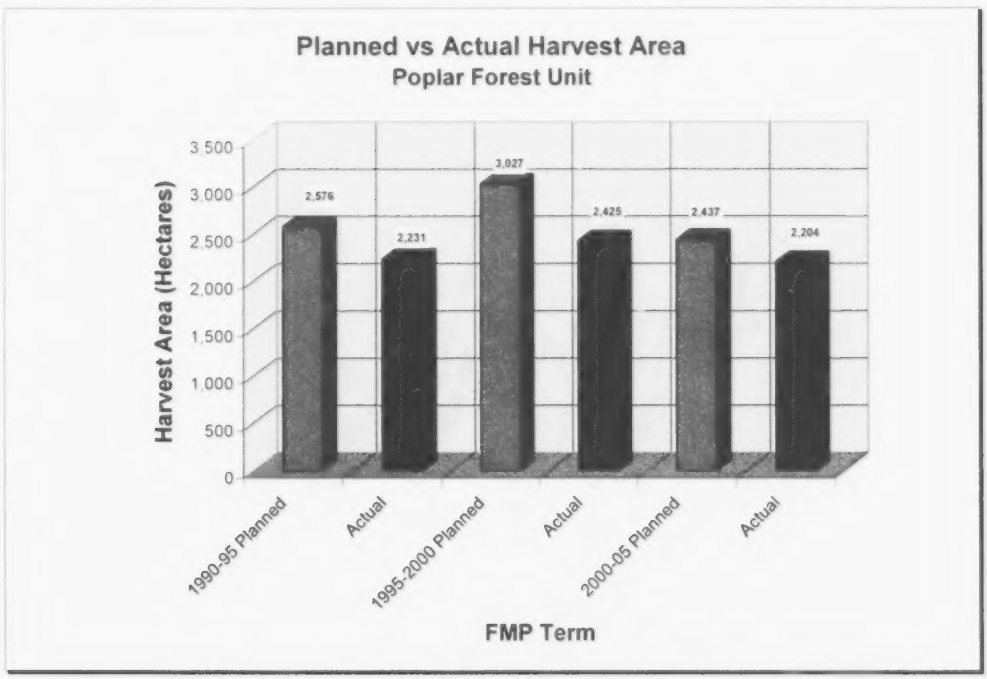

Planned vs Actual Harvest Area
Jackpine Forest Unit
Harvest Area (Hectares)
1,250
1,000
750
500
250
0
937
776
894
823
947
1,053
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term

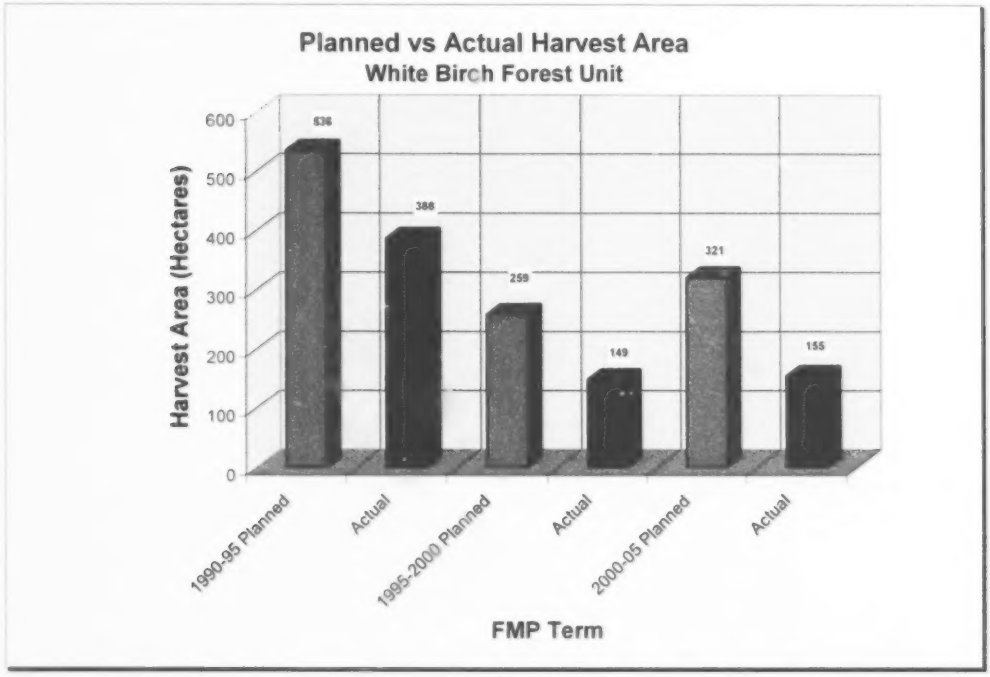

Planned vs Actual Harvest Area
Spruce Upland Forest Unit
Harvest Area (Hectares)
6,000
5,000
4,000
3,000
2,000
1,000
0
3,940
3,006
4,766
4,169
3,184
2,799
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term

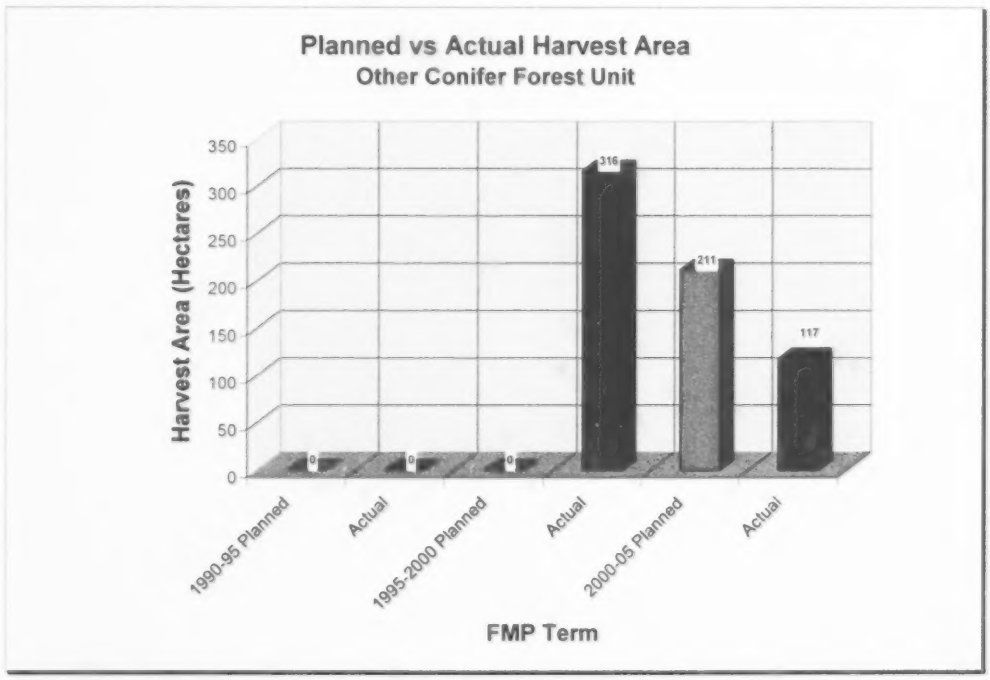

Planned vs Actual Harvest Area
Spruce Lowland Forest Unit
Harvest Area (Hectares)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
3,532
1,886
2,031
1,963
2,471
2,232
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term

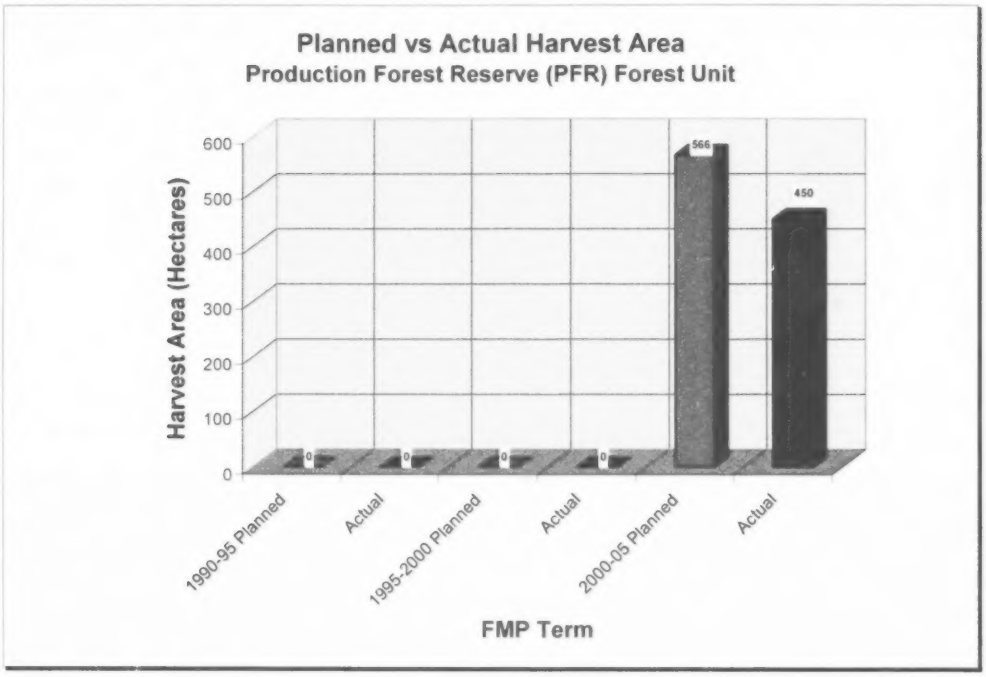

Planned vs Actual Harvest Area
Spruce Site Class 3 Forest Unit
Harvest Area (Hectares)
2,500
2,000
1,500
1,000
500
0
1,863
1,381
2,393
2,197
2,397
1,984
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term

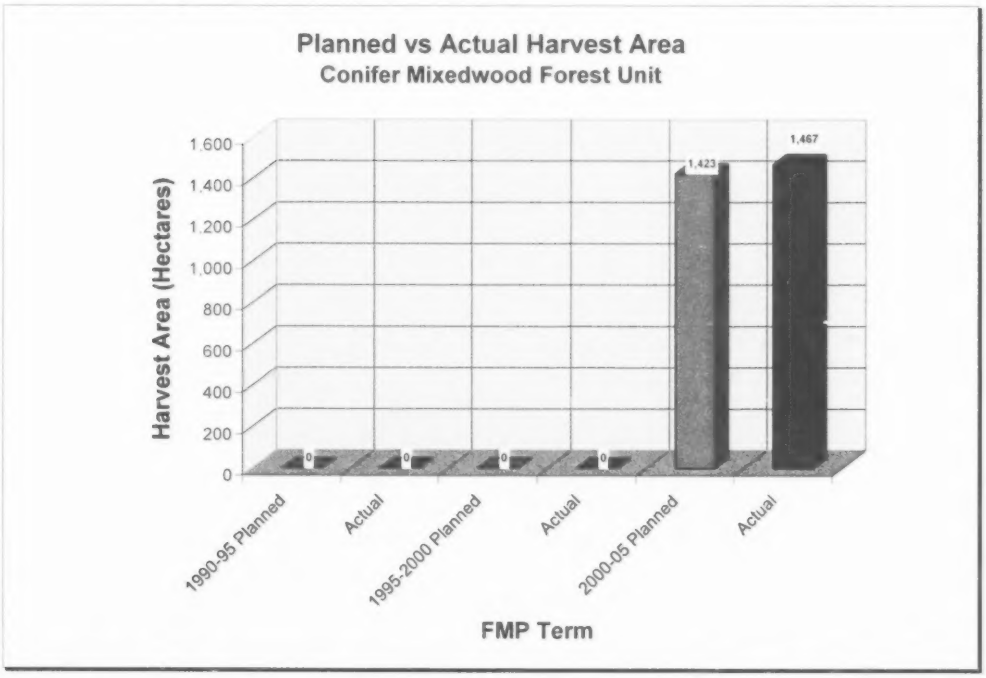

Planned vs Actual Harvest Area
Balsam Fir Forest Unit
Harvest Area (Hectares)
1,200
1,000
800
600
400
200
0
1,022
561
1,137
795
0
0
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term


Planned vs Actual Harvest Area
Poplar Forest Unit
Harvest Area (Hectares)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2,576
2,231
3,027
2,425
2,437
2,204
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term


Planned vs Actual Harvest Area
White Birch Forest Unit
Harvest Area (Hectares)
600
500
400
300
200
100
0
536
388
259
149
321
155
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term


Planned vs Actual Harvest Area
Other Conifer Forest Unit
Harvest Area (Hectares)
350
300
250
200
150
100
50
0
0
0
0
316
211
117
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term


Planned vs Actual Harvest Area
Production Forest Reserve (PFR) Forest Unit
Harvest Area (Hectares)
600
500
400
300
200
100
0
566
450
0
0
0
0
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term


Planned vs Actual Harvest Area
Conifer Mixedwood Forest Unit
Harvest Area (Hectares)
1,600
1,400
1,200
1,000
800
600
400
200
0
1,423
1,467
0
0
0
0
1990-95 Planned
Actual
1995-2000 Planned
Actual
2000-05 Planned
Actual
FMP Term

**Trend Analysis Table 5 - SUMMARY OF MANAGED CROWN PRODUCTIVE FOREST BY FOREST UNIT**

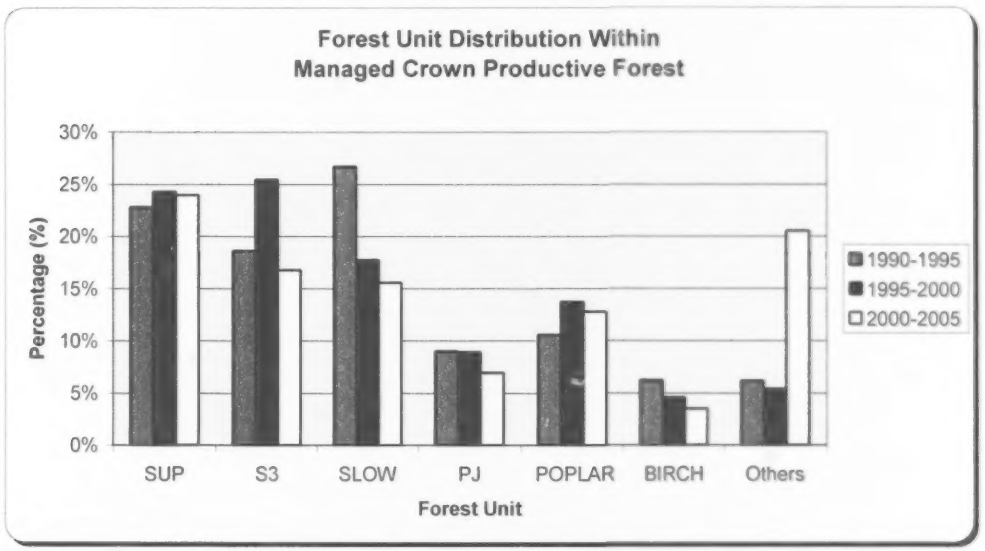
| Forest Unit | Age Class | 1990-1995 Protection Forest (ha) | 1990-1995 Protection Forest (m3) | 1990-1995 Production Forest (ha) | 1990-1995 Production Forest (m3) | 1995-2000 Protection Forest (ha) | 1995-2000 Protection Forest (m3) | 1995-2000 Production Forest (ha) | 1995-2000 Production Forest (m3) | 2000-2005 Protection Forest (ha) | 2000-2005 Protection Forest (m3) | 2000-2005 Production Forest (ha) | 2000-2005 Production Forest (m3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ConMx | B&S | | | | | | | | | | | 336 | 0 |
| | 1-20 | | | | | | | | | 0 | 0 | 10.001 | 99.479 |
| | 21-40 | | | | | | | | | 8 | 393 | 26.801 | 915.638 |
| | 41-60 | | | | | | | | | 116 | 11.592 | 36.316 | 3.266.390 |
| | 61-80 | | | | | | | | | 141 | 19.611 | 33.768 | 4.799.574 |
| | 81-100 | | | | | | | | | 203 | 34.359 | 14.653 | 2.498.463 |
| | 101-120 | | | | | | | | | 72 | 12.152 | 13.726 | 2.306.231 |
| | 121+ | | | | | | | | | 130 | 15.727 | 21.873 | 2.917.747 |
| | Sub-Total | | | | | | | | | 670 | 93.834 | 157.475 | 16.803.520 |
| SUP | B&S | | | 7.832 | 0 | | | 37.907 | 0 | | | 28.451 | 0 |
| (Sup) | 1-20 | | | 21.759 | 282.867 | | | 20.315 | 264.095 | 4 | 0 | 155.872 | 645.619 |
| | 21-40 | | | 66.324 | 5.305.920 | | | 10.172 | 813.760 | 0 | 0 | 11.690 | 360.881 |
| | 41-60 | | | 32.164 | 5.918.176 | | | 30.192 | 5.555.328 | 0 | 0 | 11.015 | 1.060.134 |
| | 61-80 | | | 64.446 | 18.560.448 | | | 56.508 | 16.274.304 | 27 | 3.779 | 27.622 | 4.064.891 |
| | 81-100 | | | 96.019 | 33.798.688 | | | 86.067 | 30.295.584 | 18 | 3.154 | 32.908 | 5.777.476 |
| | 101-120 | | | 75.865 | 26.325.155 | | | 94.585 | 32.820.995 | 34 | 5.891 | 42.614 | 7.392.385 |
| | 121+ | | | 45.872 | 12.890.032 | | | 114.240 | 32.101.440 | 22 | 3.397 | 80.840 | 11.388.699 |
| | Sub-Total | 22.676 | 3.492.104 | 410.281 | 103.081.286 | 488 | 75.152 | 449.986 | 118.125.506 | 105 | 16.221 | 391.011 | 30.690.084 |
| S3 | B&S | | | 3.917 | 0 | | | 34.297 | 0 | | | 13.494 | 0 |
| | 1-20 | | | 4.367 | 21.835 | | | 1.058 | 5.290 | 0 | 0 | 13.154 | 64.839 |
| | 21-40 | | | 15.905 | 477.150 | | | 364 | 10.920 | 0 | 0 | 3.276 | 55.880 |
| | 41-60 | | | 13.555 | 989.515 | | | 11.936 | 871.328 | 0 | 0 | 5.953 | 241.528 |
| | 61-80 | | | 21.646 | 2.770.688 | | | 17.978 | 2.301.184 | 0 | 0 | 14.308 | 925.271 |
| | 81-100 | | | 27.272 | 4.718.056 | | | 15.926 | 2.755.198 | 0 | 0 | 9.384 | 815.985 |
| | 101-120 | | | 56.591 | 10.808.881 | | | 59.969 | 11.454.079 | 0 | 0 | 26.426 | 2.529.588 |
| | 121+ | | | 190.194 | 33.474.144 | | | 226.176 | 39.806.976 | 0 | 0 | 187.202 | 16.579.001 |
| | Sub-Total | 19.907 | 1.632.374 | 333.447 | 53.260.269 | 104.169 | 8.541.858 | 367.704 | 57.204.975 | 0 | 0 | 273.197 | 21.212.092 |
| SLOW | B&S | | | 6.591 | 0 | | | 21.486 | 0 | | | 14.880 | 0 |
| | 1-20 | | | 11.936 | 107.424 | | | 2.115 | 19.035 | 0 | 0 | 17.693 | 156.659 |
| | 21-40 | | | 40.056 | 2.002.800 | | | 1.465 | 73.250 | 0 | 0 | 2.131 | 53.363 |
| | 41-60 | | | 20.314 | 2.153.284 | | | 6.325 | 670.450 | 0 | 0 | 3.291 | 184.061 |
| | 61-80 | | | 34.253 | 6.679.335 | | | 17.360 | 3.385.200 | 0 | 0 | 8.131 | 813.191 |
| | 81-100 | | | 63.662 | 15.533.528 | | | 18.643 | 4.548.892 | 0 | 0 | 10.246 | 1.247.131 |
| | 101-120 | | | 117.301 | 30.967.464 | | | 33.106 | 8.739.984 | 6 | 818 | 15.926 | 2.105.454 |
| | 121+ | | | 183.921 | 48.555.144 | | | 228.074 | 60.211.536 | 21 | 2.784 | 181.669 | 24.067.239 |
| | Sub-Total | 28.567 | 3.827.978 | 478.034 | 105.998.979 | 212 | 28.408 | 328.574 | 77.648.347 | 27 | 3.602 | 253.967 | 28.627.098 |
| PJ | B&S | | | 8.428 | 0 | | | 13.519 | 0 | | | 4.750 | 0 |
| | 1-20 | | | 19.015 | 247.195 | | | 24.714 | 321.282 | 0 | 0 | 18.431 | 231.385 |
| | 21-40 | | | 55.377 | 5.150.061 | | | 13.451 | 1.250.943 | 27 | 1.615 | 20.251 | 759.039 |
| | 41-60 | | | 26.823 | 5.552.361 | | | 16.675 | 3.451.725 | 236 | 26.026 | 9.460 | 1.012.716 |
| | 61-80 | | | 31.704 | 10.715.952 | | | 43.207 | 14.603.966 | 677 | 111.154 | 26.073 | 4.482.988 |
| | 81-100 | | | 17.815 | 7.072.555 | | | 19.761 | 7.845.117 | 129 | 25.501 | 13.830 | 2.735.437 |
| | 101-120 | | | 8.869 | 3.565.338 | | | 17.877 | 7.186.554 | 31 | 6.142 | 7.920 | 1.591.058 |
| | 121+ | | | 2.184 | 823.368 | | | 12.099 | 4.561.323 | 54 | 9.924 | 11.051 | 2.096.279 |
| | Sub-Total | 635 | 99.060 | 170.215 | 33.126.830 | 4.307 | 671.892 | 161.303 | 39.220.910 | 1.154 | 180.361 | 111.766 | 12.908.903 |
| POPLAR | B&S | | | 10.910 | 0 | | | 30.804 | 0 | | | 17.511 | 0 |
| (PoMx) | 1-20 | | | 10.136 | 212.856 | | | 21.519 | 451.899 | 126 | 2.654 | 32.863 | 680.486 |
| | 21-40 | | | 31.378 | 4.424.298 | | | 29.554 | 4.167.114 | 1.322 | 81.457 | 37.256 | 2.438.400 |
| | 41-60 | | | 19.745 | 5.291.660 | | | 18.803 | 5.039.204 | 584 | 81.931 | 18.374 | 2.427.963 |
| | 61-80 | | | 37.405 | 13.765.040 | | | 42.304 | 15.567.872 | 605 | 113.087 | 28.301 | 5.303.512 |
| | 81-100 | | | 49.641 | 20.104.605 | | | 42.436 | 17.186.580 | 709 | 143.420 | 24.014 | 4.863.821 |
| | 101-120 | | | 32.029 | 12.299.136 | | | 40.766 | 15.654.144 | 520 | 99.170 | 21.670 | 4.154.254 |
| | 121+ | | | 7.830 | 2.255.040 | | | 22.904 | 6.596.352 | 274 | 39.554 | 24.254 | 3.583.464 |
| | Sub-Total | 1.249 | 169.864 | 199.074 | 58.352.635 | 5.210 | 708.560 | 249.090 | 64.663.165 | 4.141 | 561.274 | 204.243 | 23.451.899 |
| BALSAM | B&S | | | 6.885 | 0 | | | 510 | 0 | | | | |
| | 1-20 | | | 3.969 | 99.622 | | | 1.711 | 42.946 | | | | |
| | 21-40 | | | 17.950 | 1.109.310 | | | 17.074 | 1.055.173 | | | | |
| | 41-60 | | | 22.561 | 2.025.978 | | | 37.358 | 3.354.748 | | | | |
| | 61-80 | | | 23.879 | 2.612.363 | | | 30.207 | 3.304.646 | | | | |
| | 81-100 | | | 33.315 | 4.011.126 | | | 7.706 | 927.802 | | | | |
| | 101-120 | | | 5.838 | 716.323 | | | 3.624 | 444.665 | | | | |
| | 121+ | | | 2.371 | 270.294 | | | 964 | 109.896 | | | | |
| | Sub-Total | 64 | 5.952 | 116.768 | 10.845.015 | 308 | 28.644 | 99.154 | 9.239.877 | | | | |
| BIRCH | B&S | | | 7.131 | 0 | | | 2.257 | 0 | | | 1.753 | 0 |
| (Bw) | 1-20 | | | 1.187 | 8.309 | | | 3.624 | 25.368 | 0 | 0 | 3.958 | 27.703 |
| | 21-40 | | | 6.066 | 309.366 | | | 3.308 | 168.708 | 398 | 11.485 | 3.921 | 93.726 |
| | 41-60 | | | 10.877 | 1.968.737 | | | 9.516 | 1.722.396 | 2.235 | 243.541 | 5.558 | 519.305 |
| | 61-80 | | | 26.437 | 8.195.470 | | | 13.615 | 4.220.650 | 2.984 | 472.885 | 8.806 | 1.381.093 |
| | 81-100 | | | 52.631 | 17.631.385 | | | 23.012 | 7.709.020 | 4.180 | 701.534 | 8.602 | 1.437.614 |
| | 101-120 | | | 11.535 | 3.356.685 | | | 11.968 | 3.482.688 | 1.493 | 225.809 | 8.871 | 1.302.704 |
| | 121+ | | | 1.181 | 209.037 | | | 1.718 | 304.086 | 102 | 9.573 | 4.001 | 379.556 |
| | Sub-Total | 713 | 104.098 | 117.045 | 31.678.989 | 15.595 | 2.276.870 | 69.018 | 17.632.916 | 11.392 | 1.664.827 | 45.470 | 5.141.700 |
| PFR | B&S | | | | | | | | | | | 0 | 0 |
| | 1-20 | | | | | | | | | 0 | 0 | 0 | 0 |
| | 21-40 | | | | | | | | | 0 | 0 | 692 | 13.094 |
| | 41-60 | | | | | | | | | 0 | 0 | 4.641 | 340.391 |
| | 61-80 | | | | | | | | | 0 | 0 | 6.109 | 653.318 |
| | 81-100 | | | | | | | | | 0 | 0 | 14.375 | 1.959.743 |
| | 101-120 | | | | | | | | | 0 | 0 | 16.573 | 2.265.436 |
| | 121+ | | | | | | | | | 0 | 0 | 10.356 | 1.081.235 |
| | Sub-Total | | | | | | | | | 0 | 0 | 52.747 | 6.313.216 |
| OC | B&S | | | | | | | | | | | 608 | 0 |
| | 1-20 | | | | | | | | | 62 | 0 | 735 | 0 |
| | 21-40 | | | | | | | | | 11 | 23 | 94 | 124 |
| | 41-60 | | | | | | | | | 715 | 2.804 | 252 | 842 |
| | 61-80 | | | | | | | | | 6.380 | 75.279 | 272 | 2.837 |
| | 81-100 | | | | | | | | | 2.912 | 126.305 | 580 | 27.411 |
| | 101-120 | | | | | | | | | 6.653 | 452.449 | 2.315 | 157.459 |
| | 121+ | | | | | | | | | 73.477 | 4.201.443 | 28.780 | 1.642.113 |
| | Sub-Total | | | | | | | | | 90.212 | 4.858.303 | 33.635 | 1.830.786 |
| **TOTAL** | | 73.811 | 9.331.430 | 1.824.864 | 396.344.003 | 130.289 | 12.331.384 | 1.724.829 | 383.735.696 | 107.701 | 7.378.422 | 1.523.511 | 146.979.298 |

2000-2005: Used Table FMP-9
1995-2000: Used Table 4.9
1990-1995: used Table 4.9. NSR 2.6 included in B&S area totals

Summary of Managed Productive Forest by Forest Unit

Trend Analysis Table 5 provides a summary of Crown Managed productive forest, by forest unit and age class. Productive Forest is composed of Protection Forest (including islands) plus Production Forest. Productive forest also includes Barren and Scattered or NSR (Not Sufficiently Regenerated) land. The sources of information for these areas are Table FMP-9 for the 2000-05 period and Table TMP-4.9 for the 1990-95 and 1995-2000 periods. An age class breakdown was not available for the PF areas in the 1990-95 and 1995-2000 TMPs.

The purpose of this summary is to address forest condition over time, and significant changes in forest unit area (conversions) or major age class shifts, resulting from forest management activities. The changes in area occupied by each forest unit over three planning periods are not a result of conversions due to silvicultural or forest management activities. Rather they are predominately the result of using differing forest unit criteria, different Forest Resource Inventories (1974 and 1988 FRI), or a reflection of land withdrawals, severances and corrections to the planning inventory.




As mentioned previously and as presented in Table 2, the sorting criteria used for forest unit delineation has changed considerably over the last three 5-year planning terms. The criteria used for the delineation of forest units in the 2000-05 plan was much more restrictive and Table 5 demonstrates that the productive forest area has been redistributed significantly with the addition of three new forest units - Conifer Mixedwood (ConMx), Production Forest Reserve (PFR) and Other Conifer (OC). A Balsam Fir forest unit was not used in the 2000-05 FMP. This reclassification of forest units over consecutive planning terms has complicated an assessment of forest condition.

Based solely on the information provided in Table 5, it is somewhat difficult to demonstrate that forest management activities have not had much of an impact on forest condition, especially over such a short period of time. Accordingly, a bar graph presented above has been prepared to show the proportion of the Managed Crown Productive Forest that is occupied by each forest unit. For example, the Spruce Upland forest unit (SUP) has occupied approximately 23-24% of the productive forest over the past three FMP terms. Only those forest units that have been used for all of the past three planning terms have been

charted. The remaining areas (occupied by ConMx, Balsam, PFR and OC) have been represented by a single group named "Others".

This bar graph was prepared to demonstrate that changes in forest condition have been relatively minor over this timeframe. The proportions occupied by the Spruce Upland, Jack Pine, Poplar and Birch forest units do not vary more than 3%. The shifting proportions between the Spruce Site Class 3 (S3) and the Spruce Lowland (SLOW) forest units is a reflection of the two different FRI classifications used between the 1990-95 and 1995-2000 plans. The proportion of the productive forest occupied by these two forest units was reduced between 1995-2000 and 2000-05, in part with the creation of the Other Conifer forest unit (which has been included in the "Others" category), and in part by the major land base changes (noted in Table 1).

It is evident that the proportions for all of the forest units have been reduced between 1995-2000 and 2000-05, offset with a notable increase in "Others" classification. This is a direct result of the creation of the Conifer Mixedwood, Production Forest Reserve and the Other Conifer forest units. In general, the intent in developing the forest units for the 2000-05 FMP was to redefine the jack pine and spruce dominated forest units into "purer" forest units. This resulted with some area shifting to the newly created Conifer Mixedwood forest unit. As detailed in the FRI Parameters and Criteria column in Table 2, the spruce and pine proportions in Sup, S3, Slow and PJ were restricted to 70% or greater. As well, the all area that was previously classified as the Balsam Fir forest unit was reclassified as Conifer Mixedwoo. at this time.

The creation of the PFR forest unit affected all forest units, but on a relative basis, was most notable with the reduction in Birch forest unit area. This is consistent with the predominance of Birch in the band of rugged terrain along the Lake Superior highlands, at the southern edge of the management unit. Much of this area has been typed as a PFR stand type.

TMP and FMP objectives regarding age class structure have changed dramatically over the past 10-15 years. One particular objective of the 1995-2000 TMPs for example, was to normalize the age class structure of the management units. As discussed in the Trend Analysis report and the RPFO for that planning period, that particular concept became passé in the mid-1990's. The objective relating to age class structure in the 2000-05 FMP was established to emulate the trends of the "natural forest" over time.

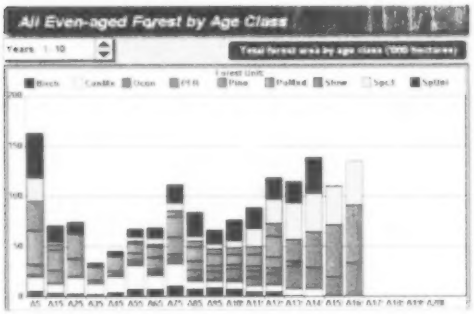
Through analysis of SFMM model projections (in part), the planning team chose a "Selected Management Alternative" with the desired future forest condition (desired age class structure) being attained by the year 2100. Age class structure charts (from the SFMM model) have been presented and highlight the current conditions for 2000, the natural forest conditions in the year 2170 (portraying how the forest might look in the absence of human intervention), and the desired future forest condition of the Selected Management Alternative.

An age class SFMM screen from analysis undertaken for the 2005-10 FMP has also been presented and shows the current forest condition in 2005. The Desired Future Forest Condition will take many years to achieve, and changes that may occur over any given 5-year timeframe are essentially of little consequence, barring any extremely large natural disturbances.

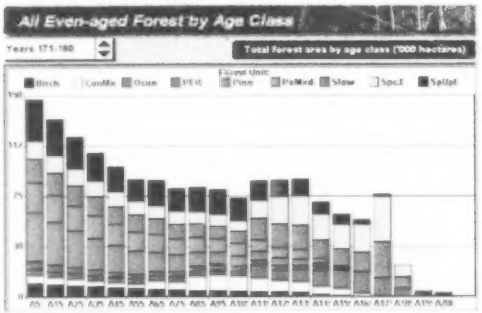
Nevertheless, recognizing that there have been some changes in forest unit definitions as well as corrections and aging of the planning inventory, a comparison between the two SFMM screens (2000 and 2005) does indicate that some marginal positive changes have taken place. There is more area occupying the youngest age classes in 2005, and slightly less area in the oldest age classes, thereby approaching the trends of the natural forest, albeit very slowly.

CURRENT AND DESIRED FUTURE AGE CLASS STRUCTURE

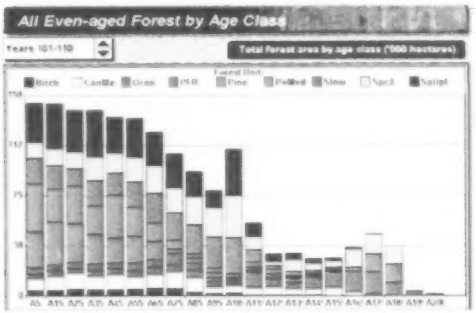
Current Forest Condition (2000)



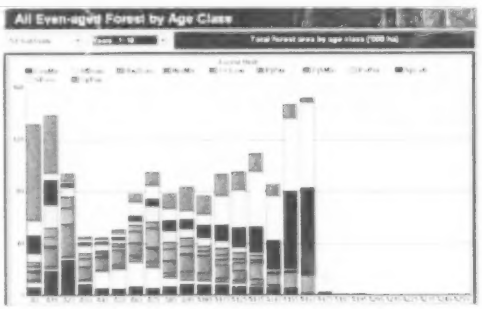

Future Natural Forest (2170)



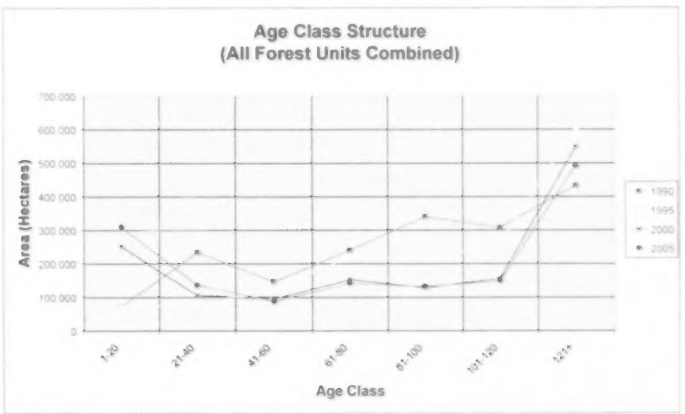

Selected Management Alternative (2100)




Current Forest Condition (2005)




AGE CLASS STRUCTURE (of Crown Managed Forest)




It should be noted that the SFMM ages class graphs and the objective relating to age class is applicable to all forest area, and not solely to Crown Managed ownership. An additional graph has been prepared (presented above) to chart the values reported in Table 5 which are specific to Crown Managed Productive Forest, for all forest units combined. As a point of interest, the Crown Managed areas for the 2005-10 FMP have also been plotted. The 2005 values also show a marginal movement towards the desired condition, with slightly less area occupying the oldest age classes and slightly more in the younger age classes.

Renewal, Tending and Protection Operations

Trend Analysis Table 6 provides a summary report of planned and actual renewal, tending and protection operations. The sources of information for the planned areas were Table 4.19 from the 1990-95 and 1995-2000 TMPs and Tables FMP-25 and FMP-25a from the 2000-05 FMP. The actual values in Table 6 are for the complete 5-year period.

In the mid-1990's, Kimberly-Clark as the FMA-holder on the Longlac and Nakina Forests, and the District MNR on the Geraldton Company Management Unit, received control over forest renewal funding levels through the assignment of Special Purpose Accounts for each forest. At that time, the primary regeneration strategy was to take as full advantage as possible of natural regeneration and to make planting plans as site specific as possible to ensure that stock was committed to the best growing sites. Prior to the 1995-2000 planning period, the primary factor affecting silvicultural efforts was the tree planting "cap" levels that were established by the MNR.

A silvicultural forecast key was developed for the 1995-2000 period, and used to predict the various treatments for the harvest areas based on forest unit, stand type, species composition, stocking and stand area. This key can be found in Appendix H of the TMP, and is based on Table 4.11 Silvicultural Ground Rules for Normal Operations. This approach was taken during the plans' preparation, and set levels which could be achieved during the term, assuming planned allocations would be harvested and provided sufficient funding was available.

In the 2000-05 FMP, Silvicultural Ground Rules (SGRs) were developed to describe a range of silvicultural treatment packages appropriate for each forest unit-ecosite combination. SGRs specified the silvicultural systems and types of harvest, renewal and tending treatments that could be used to manage forest cover on the management unit. Each SGR is a unique combination of three major components: current forest conditions, future forest conditions, and silvicultural treatment packages.

The current forest condition identified the existing forest in terms of forest unit/ecosite combinations. The SGRs also identified the type of forest that was expected to develop over time (i.e. future forest condition). The future forest condition was defined in terms of forest unit, stand characteristics and development information. Silvicultural treatment packages (STPs) refer to the range of acceptable silvicultural treatments for the activities of harvest, renewal and tending which could be undertaken at various intervals throughout the life of a forest stand. These treatments, when applied across the entire forest, would direct forest development over time toward the desired future forest condition. Each STP included a silvicultural system, harvest method, logging method, renewal treatment(s) (site preparation and regeneration), tending treatment(s) and regeneration standards.

Table FMP-10 documented the silvicultural systems and types of treatments that could be used to manage the current forest units on the Kenogami Forest in order to achieve a desired future condition. Corresponding to the detailed description of each forest unit/ecosite combination was a range of silvicultural treatment packages that are appropriate in achieving the desired future forest condition. Each SGR was identified by a unique SGR code for each forest unit (i.e. PoMix-13, Slow-39). A detailed discussion outlining the various components of the SGRs used in the generation of Table FMP-10 can be found in Section2.3.3.2.9.3 of the 2000-05 FMP. Table FMP-10 and the Development Information for the SGRs is found in Appendix F of the plan.

The silvicultural strategies developed in the 2000-05 FMP to achieve many of the objectives, especially those objectives relating to forest diversity and forest cover, were based on the silvicultural ground rules for the harvest, renewal and tending of the existing forest cover. STPs that involved different treatments at differing costs (i.e. planting versus seeding), were considered as separate silvicultural strategies. STPs that involved silvicultural treatments with similar expenditure requirements were grouped and considered as a single silvicultural strategy. In general, the silvicultural intensity of the renewal treatments (extensive, basic or intensive), represented the three broad categories of silvicultural strategies developed for the

2000-05 plan. A more detailed discussion of the various silvicultural intensities and the application to the various forest units (or grouping of forest units) can be found in Section 2.3.3.2.9.4 of the 2000-05 FMP.

**Trend Analysis Table 6**

**SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS**

| | Area by Future Forest Unit (ha) | | | | | |
|---|---|---|---|---|---|---|
| | 1990-1995 | | 1995-2000 | | 2000-2005 | |
| | Planned | Actual | Planned | Actual | Planned | Actual |
| ***Renewal*** | | | | | | |
| **Regeneration** | | | | | | |
| **Uneven-Aged Management** | | | | | | |
| Selection Cut - Harvest | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Uneven-Aged Management** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Even-Aged Management** | | | | | | |
| *Natural Regeneration* | | | | | | |
| Clearcut (includes CLAAG) | 17,431 | 18,737 | 16,812 | 13,763 | 16,036 | 18,118 |
| Strip Cut | 8,940 | 2,496 | 9,421 | 1,181 | 933 | 0 |
| Seed Tree Cut | 0 | 331 | 863 | 593 | 0 | 207 |
| Uniform Shelterwood Seed Cut | 0 | 0 | 0 | 0 | 0 | 0 |
| *Subtotal Natural* | 26,371 | 21,564 | 27,096 | 15,537 | 16,968 | 18,325 |
| *Artificial Regeneration* | | | | | | |
| Planting | 20,770 | 20,242 | 22,620 | 25,789 | 42,616 | 35,266 |
| Seeding direct | 6,500 | 4,521 | 5,950 | 2,059 | 1,561 | 182 |
| with site preparation | 3,150 | 0 | 1,231 | 694 | 2,231 | 1,631 |
| Scarification | 130 | 259 | 130 | 0 | 0 | |
| *Subtotal Artificial* | 30,550 | 25,022 | 29,931 | 28,542 | 46,408 | 37,079 |
| **Total Even-Aged Management** | 56,921 | 46,586 | 57,027 | 44,079 | 63,376 | 55,403 |
| **Total Regeneration** | 56,921 | 46,586 | 57,027 | 44,079 | 63,376 | 55,403 |
| **Site Preparation** | | | | | | |
| Mechanical | 29,100 | 19,370 | 24,124 | 22,452 | 24,729 | 17,640 |
| Chemical | 3,350 | 865 | 1,400 | 1,371 | 3,331 | 2,120 |
| Prescribed Burn | 2,670 | 821 | 610 | 1,302 | 3,410 | 1,565 |
| **Total Site Preparation** | 35,120 | 21,056 | 26,134 | 25,125 | 31,470 | 21,325 |
| ***Tending*** | | | | | | |
| **Cleaning** | | | | | | |
| manual | 1,000 | 437 | 1,000 | 4 | 0 | 0 |
| chemical - ground | 1,500 | 87 | 300 | 390 | 2,500 | 127 |
| - aerial | 23,500 | 19,453 | 18,731 | 13,281 | 30,696 | 13,724 |
| mechanical | 0 | 0 | 0 | 0 | 0 | 0 |
| prescribed burn | 0 | 0 | 0 | 0 | 0 | 0 |
| **Spacing**, pre-commercial thinning, improvement cutting | | | | | | |
| even-aged | 3,500 | 1,493 | 2,884 | 2,194 | 3,500 | 2,190 |
| uneven-aged | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cultivation** | 0 | 0 | 0 | 0 | 0 | 0 |
| ***Total Tending*** | 29,500 | 21,470 | 22,915 | 15,869 | 36,696 | 16,041 |
| ***Protection (Insect Pest Control)*** | | | | | | |
| accelerated harvest | | 0 | | 0 | | 0 |
| salvage | | 0 | | 0 | | 0 |
| manual protection | | 0 | | 0 | | 0 |
| ground insecticide | | 17 | | 0 | | 0 |
| aerial insecticide | | 4,415 | | 0 | | 0 |
| ***Total Protection*** | | 4,432 | | 0 | | 0 |

1990-95 actual data taken from Table RPFO-7
1995-2000 actual data taken from Table RPFO-7
2000-05 actual data taken from 2004-05 Annual Report (Table AR-7)

Neenah Paper silvicultural foresters developed a silvicultural treatment package key called HARAM (Harvest And Renewal Algorithm). It was developed for two main reasons:

1. to assign a preferred STP to each FRI stand, as required by the FMPM, and
2. to serve as a predictor of stand level silvicultural treatments for the harvest areas. These forecast treatments will be used to complete Table FMP-25 Forecast of Renewal and Tending Operations..

FMP-10 Silvicultural Ground Rules identifies the preferred SGRs for each forest unit as determined by the silvicultural strategies identified for each forest unit in SFMM. All the preferred SGRs for all forest units were compiled, and 21 preferred Silvicultural Treatment Packages (STPs) for regeneration were identified. Two additional STPs were included to cover poplar thinning and aerial chemical tending treatments.

HARAM was run on the GIS database for all areas selected for renewal and tending operations. The algorithm evaluates each individual FRI polygon according to:

- ecosite,
- forest unit,
- working group,
- site class,
- percent hardwood component (Po + Bw),
- relative proportions of Po and Bw (i.e. Bw>Po), and
- percent pine component.

Once evaluated, HARAM selected one of the 23 preferred silvicultural treatment packages and assigned it to the FRI polygon. Each STP detailed the individual renewal treatments (natural regeneration, planting, seeding, site preparation, tending, etc.) identified for that polygon. Once all the FRI polygons were populated with a STP, this information was used to compile the area for treatment in Table FMP-25. Details of the preferred silvicultural treatment package key and HARAM may be found in Appendix O. The use of HARAM and its outputs are discussed in more detail in Section 2.4.4.2 of the plan.

As reported in Table 6, the 2000-05 FMP planned total regeneration area was 63,376 hectares, or 85.3% of the planned harvest area (74,326 ha, counting amendments and salvage areas). The actual total regeneration area was 55,403 hectares, or 87.4% of the planned regeneration area. However, if we assume that regeneration activities were planned to occur only on area harvested during the 5-year period from 1998-99 to 2002-03 (approximately 50,500 ha), the actual area regenerated during the 2000-05 FMP is certainly appropriate and acceptable.

The proportions of natural and artificial regeneration were very similar with planned versus actual results. Of the FMP total regeneration area planned on the Kenogami Forest (63,376 hectares), 26.8% was planned for natural, with the rest planned for artificial treatment. The total area regenerated was 55,403 hectares, 33.1% as natural regeneration (18,325 hectares - 108% of planned) and 66.9% as artificial regeneration (37,079 hectares – 80% of planned).

There are no overly-significant differences evident in Table 6 between planned and actual activities in the regeneration category. The 207 hectares regenerated by Seed Tree Cut was harvested during the 1995-2000 TMP, and was declared "natural" in the 2000-01 AR. The 933 hectares planned as Strip Cut was planned for regeneration of Cedar dominated stands within the Other Conifer forest unit. This harvesting did not take place. The shortfall of direct seeding and seeding with site preparation was based on non-suitable site conditions for these treatments. The shortfall in total areas being planted over the 5-year term was a result of different factors including more area selected for natural regeneration and in part because higher than anticipated planting densities were required with container stock.

A variety of site preparation techniques were planned to be used during the 2000-05 FMP, depending on the forest unit and ecosite. For example, site preparation may not be required at all for artificial regeneration of some shallow soil ecosites, on upland ecosites with a thin duff or organic layer and low

competition, on lowland organic soil ecosites, or on sites with adequate natural seedbeds, adequate amounts of advance regeneration, high amounts of surface stones and boulders, and steep slopes. Wherever possible, regeneration without site preparation would be considered.

The majority of the mechanical site preparation on the Kenogami Forest was done by disc trenching, using an in-house contractor to perform the majority of this work. Some heavy (shear blade) equipment was used during the 5-year term by Lecours Lumber in the eastern part of the licence area. With the predominance of mixedwood ecosites on the Hudson Bay Lowland soils in this area, there is a thick duff layer, heavy slash burdens, and virtually no rock or stone in the soils which is conducive to effective shear blade operations.

Prescribed burning (PB) has been used as a silvicultural treatment on the Kenogami Forest since the late 1960's. Two high complexity PBs were completed during the 2003-04 AWS year (in the Lillian and Cavel blocks), and amounted to 977 hectares blackened. In Both cases, less area was treated due to the lower indices under which the burns were conducted. In addition, 588 hectares affected in slash pile burning program. A total of 3,331 hectares of chemical site preparation was planned in the FMP to control vegetation prior to planting or as a pre-burn treatment. A total of 2,120 hectares were actually chemically site prepared over the 5-year term, as the pre-burn treatment for the Lillian PB was not required and some other sites planned for ground chemical treatment were in fact not appropriate. Total site preparation activities were 67.8% of planned. Mechanical site preparation fulfilled the majority of the site preparation needs, and met the strategy to deliver the required regeneration program for the following years, on an annual basis throughout the TMP term.

Total tending on the Kenogami Forest affected 13,851 hectares, only 41.7% of the planned total. The most significant shortfall was realized in chemical aerial cleaning. The areas proposed for the aerial application of herbicides were identified by the preferred silvicultural treatment package using of the HARAM algorithm. Each FRI polygon that had a STP that includes chemical tending was identified as planned in Table FMP-25. As is Neenah Paper's policy (and a strategy identified in the FMP), each potential aerial chemical tending site was assessed prior to tending operations, to determine its suitability for treatment. The final areas planned for aerial spray were defined at the time of Annual Work Schedule submission. The total area planned on an annual basis over the 5-year period was less than 14,000 hectares. Essentially, the aerial spray program has been employed on an as-needed basis, and site specific decisions resulted in the difference between planned and actual areas.

A total of 3,500 hectares were planned to receive pre-commercial thinning, 2,500 hectares of the Poplar Mixedwood forest unit and 100 hectares of Jack Pine. A total of 2190 hectares have received this treatment, 324 hectares in Spruce Upland, 504 hectares in Jack P, and 1,362 hectares in Poplar Mixedwood.

Harvest Area Successfully Regenerated

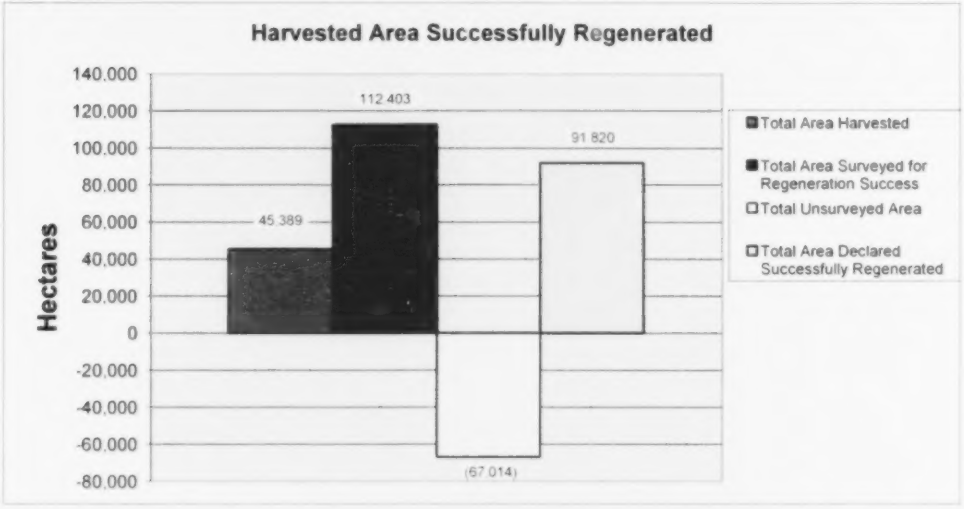
In Trend Analysis Table 7, the harvested area for the five-year period 1990 to 1995 has been reported and amounts to 45,389 hectares. It is recommended in Appendix C of the IFAPP to use a 10-year delay from the end of the audit period (2005) in harvest area reported, to address the time lag that occurs prior to the point when regeneration is assessed for success. Table RPFO-1 from the 1990-95 RPFO has been used a the source for this area.

**Trend Analysis Table 7**

**Harvested Area Successfully Regenerated - Summary of All Forest Units**

| | AREA in HECTARES (All Forest Units Combined) |
|---|---|
| Total Area Harvested | 45,389 |
| Total Area Surveyed for Regeneration Success | 112,403 |
| Total Unsurveyed Area | (67,014) |
| Total Area Declared Successfully Regenerated | 91,820 |
| **Total Area Surveyed Not Successfully Regenerated** | 3,396 |
| NSR | 3,396 |
| B&S | - |
| Not Available for Regen (eg. Roads & landings) | 2,269 |
| Other | - |
| **Percent of Area Surveyed Declared FTG** | 82% |

Sources of information are as follows
Table RPFO-1 for the 1990-95 FMP
Table AR-14 for the 2004-05 Annual Report




Over the course of the 2000-05 FMP, a total of 112,403 hectares have been surveyed for regeneration success, exceeding the area harvested between 1990 and 1995 by 67,014 hectares and exceeding the 2000-05 FMP forecast of assessment by 61,869 hectares. Table AR-14 from the 2004-05 Annual Report (to be submitted in November 2005), has been used as the source of information for these areas. As mentioned in annual reports (for 2001 and 2002), the 1988 FRI inventory identified large areas of B&S on the management unit. Neenah Paper assessed these areas and reclassified stands on an extensive basis during those years. These efforts were not reported as planned in Table FMP-28.

Of the area surveyed for regeneration success, 91,820 hectares were declared Free-to-Grow (81.7%). The total area surveyed not Free-to-Grow (3,396 ha) is considered to be NSR as it has not, as yet, made the one of the Free-to-Grow criteria of height, stocking or free of competing vegetation. A total of 2,558 hectares has been deemed to be not available for regeneration (due to losses to roads and landings.

Renewal Support

Renewal support includes those activities that are necessary to support the forecast types and levels of renewal and tending operations during the five-year term outlined in Table FMP-25. Renewal support includes activities such as planting stock production, tree seed collection and tree improvement operations that were planned to be conducted on the Kenogami Forest. Although the 2004-05 annual report information is not available at the submission of this report, some generalizations from the four previous years can be made regarding renewal support, relative to the 2000-05 FMP.

Planting Stock Production

The total stock production required for the five-year period was 48,652,200 seedlings. Of this total production, black spruce stock production represented 80%, white spruce 11%, and jack pine 9%. With respect to planned versus actual planting stock quantities, 82.6% had been achieved in the fourth year.

Bare root stock production represented less than 5% of the total stock production, and after the 2001-02 AWS period, was no longer planted. After several years of planting stock trials involving large container stock as a bare root replacement, a decision was made in 1998 to replace bare root stock with large container stock, in both black spruce and white spruce. This decision was based on several factors associated with bare root stock production and planting, including stock forecasting (three year time frame), stock delivery, storage and handling (nursery and field), plantation survival, and stock production, delivery and planting costs.

Tree Seed Collection

The tree seed inventory for the Kenogami Forest exceeded 711 million seed in 2000. Jack pine seed represented 43% of the total inventory, white spruce 24% (of which 15% is seed from the clonal seed orchards of McPherson and O'Connor) and black spruce seed 33% (of which only 2% was from either the McPherson or O'Connor seed orchards). It was evident that there was sufficient seed inventory on the Kenogami Forest to meet the black and white spruce seed demands of this plan. However, there were some areas where seed inventories were low or nonexistent, and were addressed in the plan. The forecast of seed and cone collection by species, seed zone and type of collection for the five-year term of this plan were indicated in Figure #42 of the FMP. With respect to planned versus actual tree seed collection strategies, 52% of the FMP planned volume had been achieved by 2003-04 (34% of the white spruce target, 31% of the jack pine target and 100% of the black spruce target).

Tree Improvement Strategies

During the term of the 2000-05 FMP, Neenah Paper continued to be an active member of the Superior-Woods Tree Improvement Association and Forest Genetics Ontario and as such, continued to be active in the maintenance of its tree improvement facilities and development of tree improvement programs. Neenah Paper's tree improvement facilities include the McPherson Clonal Seed Orchard east of Longlac, the O'Connor Township Clonal Seed Orchard west of Kakabeka Falls and more recently, the establishment of a black spruce test/seedling orchard at Appendix Lake (on part of the old Kimberly-Clark nursery site) also east of Longlac.

The following maintenance and tree improvement activities were undertaken over the course of the FMP:

- survival and health assessments;
- application of fertilizer to the black spruce McPherson Orchard;
- cone crop monitoring and collection;
- grass cutting, brushing and herbicide treatments, as required;
- chipping or burning of debris following collection activities (McPherson and O'Connor);
- top pruning to maintain clones at a manageable height;

- removal of white spruce clones from Lake Nipigon West and Lake Superior breeding zones in the O'Connor orchard;
- vegetation control of three nursery beds at Appendix Lake;
- soil sampling at Appendix Lake;
- installation of gate and other access restrictions to Appendix Lake Orchard;
- all mature and juvenile jack pine within a 200-m buffer around the jack pine orchard at Appendix Lake were removed.

Development of a first generation tree improvement program in black spruce and jack pine progressed well, with the help of funding from the Living Legacy Trust employment program. A Lake Nipigon East (LNE) black spruce seedling orchard was established at the Appendix Lake site. Fifty replications were established at Appendix Lake. In addition, 35 replications were established at the Exton LNE black spruce family test site. Another 35 replications were established on the Lake Nipigon Forest at the Dragonfly Lake site near Beardmore. A site for the White Spruce Focal Point Seed Zone project (funded by Living Legacy Trust) was cleared at Appendix Lake in the spring of 2002 and was planted in early July.

Development and establishment of a first generation tree improvement program in jack pine was completed in 2003 with the help of funding from the Living Legacy Trust Funding Program 5 (employment program). A Lake Nipigon East (LNE) jack pine seedling orchard was established at the Appendix Lake (old Kimberly-Clark nursery) site in late May/early June. Forty-eight replications were established at Appendix Lake. In addition, 36 replications were established at the Exton LNE jack pine family test site. A further 50 replications were established on the Lake Nipigon Forest at the Atigogama test site near Beardmore.

**Other FMP Objectives and Strategies**

Objectives Relating to Forest Diversity:

Objective A1: To ensure that the current natural biodiversity of the Kenogami Forest is maintained within the bounds of natural variation.

During the preparation of the 2000-05 FMP, specific SFMM projections relating to forest unit stability, age class structure and habitat unit stability were analyzed by the planning team. For comparative purposes, a benchmark scenario was established with the SFMM model to predict how the Kenogami Forest might develop over time in the absence of human intervention. This scenario (the Null Hypothesis) where no harvesting or fire suppression activities occurred, represented the future forest conditions that could result through the course of natural growth, natural succession and natural disturbance. In this manner, non-spatial indicators were assessed for trends. The target set by the planning team was to approach the indicators of the Null Hypothesis (the Natural forest conditions), with the future forest conditions of the Selected Management Alternative, over the long term (80 to 100 years).
As discussed previously with the trends of Table 5, it is very difficult to assess achievement of objectives of this long-term nature, over a 5-year period, especially as forest units have been redefined for 2005-10 FMP planning purposes. Objective achievement was essentially assessed through the analysis of management alternatives, during the preparation of the plan. The objective target was achieved at that time.

Objective A2: To protect, maintain and monitor landscape process that can affect structure, composition and function of forest ecosystems.

The planning team's target was to develop measurable indicators, related to landscape processes that could help to assess forest sustainability, both during the planning process in the selection of management alternatives using available computer models and throughout the 5 year term of the plan through compliance monitoring.

Net primary productivity (NPP) and water yield are expressions of landscape processes. The Net Primary Productivity (NPP) of the forest is a measurable indicator of forest sustainability, describing the forest condition. It is a measurement of net carbon assimilation expressed in kilograms of carbon produced per hectare per day. Sub-regional mean values, shown on Table FMP-6 for the 2005-10 plan, have been provided by the MNR from data collected for 1997 to 2000 and used in the RHESSys model (Regional Hydro Ecological Simulation System). This is a landscape level data processing and simulation system for estimating forest carbon cycling. Unfortunately, the data provided for the 2000-05 FMP was expressed in $g/m^2$ and it is not possible to calculate the % change from that planning period.

A second component of Table FMP-6 is water yield, which is directly affected by the amount of watershed area clearcut or burned within the past 10 years. Analysis has enabled the planning team to determine the percentage of productive forest area disturbed within the past 10 years, in relationship to total productive forest area within second order watersheds. The Best Management Practices described in the *Forest Management Guidelines for the Protection of the Physical Environment* state that harvest areas within a five-year plan, plus past harvested areas not yet declared free-to-grow, should not exceed greater than 50% of a watershed area. The % of productive forest area disturbed within the past 10 years is in fact lower in 2005 than it was in 2000.

Other strategies involved forest management activities, how they were planned and employed to minimize adverse environmental effects. Training, monitoring and adhering to applicable MNR guidelines contributed to site specific aspects in the achievement of this objective.

**MANAGEMENT UNIT NAME: Kenogami Forest**
**Plan Term: 2005 to 2010**

**FMP - 6 LANDSCAPE PROCESSES**

| Net Primary Productivity (kg/ha/year) | | Water Yeild | | |
|---|---|---|---|---|
| Estimates based on mean montly NPP values (expressed in kg/ha/day) and averaged for the years 1997-2000 | | Management Unit Second-Order Stream Watersheds | | |
| Sub-Regional Value | % Change from previous plan | Total Productive Forest Area (sq km ) | % Productive Forest Area Disturbed within 10 years | % Change from previous plan |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| NW3 5716 | N/A | 9363 km2 | (970 km2) 10.36% | -1.15% |
| NW4 4848 | N/A | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

The NPP values in the previous plan were expressed in g/m2, and a % change is not possible.

Objectives Relating to Social and Economic Matters

Objective B1: To ensure an optimum, sustainable, consistent and predictable volume of appropriate wood fibre is available for industrial and consumer needs from the Kenogami Forest, while recognizing the influence of other forest values.

Objective B2: To utilize the allowable supply of the fibre resource from allocated harvest areas in order to meet the annual production and delivery requirements of desired wood products to dependent mills at competitive costs.

Objective B3: To maintain and provide opportunities for optimum levels of local employment derived from forest management within the Kenogami Forest.

These three objectives dealt with such interests as optimum volumes, consistent supply, desired wood products, balanced area allocations, utilization, cost competitiveness, annual production and delivery requirements and employment levels. At the time of plan preparation, the planning team did not know the precise and appropriate volume targets that should be used in strategic modeling since so many other factors would come into play, such as market conditions, operational constraints, purchased wood opportunities and a number of other considerations. The exact minimum volume numbers that would place the dependent mills in jeopardy was not known. Annual targets (not minimum) of 1,400,000 m3 of Spruce/Pine/Fir (SPF) and 320,000 m3 of Poplar were ultimately used for SFMM modeling purposes in the Selected Management Alternative. It was thought that these volumes, if met, would reasonably satisfy the historical timber targets, including historical supply and committed volumes for both the short and longer terms and were sufficient to maintain employment levels of the current existing workforce.

The Selected Management Alternative was chosen in part because it provided for a consistent volume supply over time, meeting the minimum SPF target in the first term and coming fairly close to the poplar target. From an area perspective, a fairly consistent Available Harvest Area (AHA) by forest unit from term to term was also provided, theoretically addressing the desired summer/winter balances (for area and volume needs). An optimum balance of forest unit area in allocations, in conjunction with maintenance of commuter operations (a planning strategy), would also contribute to meeting Objective B3.

In the initial assessments of objective achievement through ongoing strategic modeling and the analysis of management alternatives, many aspects could not be measured (or ensured) as they were so dependent upon results of operational planning or actual success of operations over the 5-year period. After operational planning, the selected harvest areas were extremely close to the AHA (0.52% variance) on a total area basis. There were age class differences between selected harvest areas and the AHA within forest units due to the emphasis placed on harvest selection criteria, and the provision of the optimum balance of objective achievement. One of the many complexities that the planning team faced in SFMM modeling (and the application of area limitations within the SFMM cases) pertained to the maintenance of local levels of employment, both in timber related businesses and non-timber related businesses. This situation became more complex with consideration the long-term viability of existing communities, including First Nation communities, and the towns of Hearst, Nakina, Schreiber, Terrace Bay, Longlac and Geraldton, some of these communities being existing commuter centres. The geographical spread of these communities was taken into consideration in strategic modeling (application of maximum or minimum SFMM area limits) and through the harvest allocation process.

Ultimately, the planning team determined that the selected harvest stands would contribute to meeting these three objectives, especially considering that a true balance had been achieved in the maintenance of year-round employment, long-term viability of communities and businesses, maintenance of commuter operations, and the satisfaction of production and delivery requirements to dependent mills at competitive

costs. As has been noted in previous text and presented in Table 3 however, significantly lower yields than planned were recovered over the 2000-05 period, and the planned volumes were not realized.

Objective B2 was established in part to address the Ministerial timber supply commitments (as outlined in Appendix E of the SFL). Table FMP-24 detailed these commitments and destinations. It should be noted that specific conditions pertained to one directive regarding joint ventures with Constance Lake First Nation (as discussed in Section 2.3.3.2.1.3 and Section 2.3.5.2.2 of the 2000-05 FMP).

There are three separate fibre directives to the Hearst area sawmills. Two of them, in total direct that 105,360$m^3$ is to be made available annually, to the Lecours Lumber sawmill in Calstock. Over the first four years of the FMP 276,550 $m^3$ have been delivered, leaving a shortfall of approximately 144,890 $m^3$. The four year total volumes to the Tembec sawmill in Hearst (formerly Malette Inc.), amounted to 32,112 m3, compared to 75,000 m3 directed volume in the FMP. All receiving mills that had volumes committed to them from the Kenogami Forest had been advised of the lower than planned yields by the second year of the plan.

The 2000-05 FMP assumed that all poplar volumes harvested on the Kenogami Forest would flow through LWI's facility, offering LWI the opportunity to maximize to their appropriate product specifications, as market conditions dictated and residual poplar chips flowing to the Terrace Bay pulp mill. The intent of the Ministry's directive for poplar is that the poplar volumes would be shared equally between LWI and KC. Both parties have attempted to meet the intent of this directive, but in general, the reality of market conditions, the realities of delivery capabilities and the difficult business environment are what actually dictated the achievement level of this particular directive.

It is impossible to accurately report the exact poplar deliveries to Longlac Wood Industries, and the residual poplar chips delivered elsewhere. The actual delivered volumes to all mills have never been reported. Instead, factors have applied to all deliveries to LWI from the Kenogami Forest (based on historical recovery of veneer and/or flakers), and it was assumed that the final product type recovery and subsequent distribution to individual mills, including chips to Terrace Bay, would be consistent with those factors. The TREES system reports are based on those assumptions. Neenah Paper purchases chips from LWI, but there is no mechanism to quantify volumes from the particular management unit they originated from, or what year the poplar tree was harvested. The forecasted utilized poplar volumes for this planning term amount to 276,707 $m^3$ annually, with SFMM volume projections indicating that poplar volumes would increase, and attain the 310,000 m3 annual target within twenty years. In actual fact, over the first four years, the average annual poplar supply (not counting some bush inventory) amounted to 164,011$m^3$.

A directive to Long Lake Forest Products (LLFP) stipulated that a total of 240,000$m^3$ be delivered annually to the sawmills in Longlac or Nakina (now called Nakina Forest Products - NFP). In addition, the plan (Table FMP-24) outlined that approximately 201,000 $m^3$ of "open market" sawlog wood fibre might be available, should market conditions be advantageous. The two sawmills producing extremely well, and mutually beneficial business arrangements between LLFP or NFP and Neenah Paper made it possible to exceed the formal commitment with additional open market sales. An annual average of 402,380 $m^3$ was delivered to these sawmills over the first four years of the FMP.

Another aspect of Objective B2 was utilization, with one strategy being to utilize the maximum amount of marketable merchantable wood fibre within allocated harvest blocks while maintaining opportunities for other uses/users and ensuring compliance with MNR guidelines. The Forest Operations Compliance Program was used to monitor the compliance or non-compliance of forest operation practices including utilization practices. The planning team chose to use the number of non-compliance occurrences, and their significance (acceptable, minor, moderate, significant, very significant), as a means to measure the achievement of this objective. The results thus far have been very favourable.

Other efforts undertaken to maximize the utilization of the available volumes included the following:

- Currently used species were topped at smaller diameters

- The salvage harvest of timber occurred after the Nakina Blowdown, prior to further damage from windthrow, disease, and insects.
- Training was provided to employees to minimize the loss of productive land (eliminate unnecessary bulldozing, etc.)
- Employees in were provided training in fire fighting techniques on an annual basis and fire fighting equipment was maintained on harvesting sites in preparation for initial attack.
- Fuelwood, and other specialty/personal use material, was made available.

Objective B4: To explore, and identify where opportunities exist, means through which First Nations people can participate more fully in benefits provided through forest management.

The planning team identified three targets for this objective:

(1) To fully involve Native communities within or adjacent to the Kenogami Forest in forest management planning.

A separate formal consultation process, the Forest Management Native Consultation Program, was offered to each First Nation community affected by operations on the Kenogami Forest. Matawa First Nations Management represented Aroland, Ginoogaming, Long Lake #58, Pays Plat, and Constance Lake First Nations with a Planning Forester on the planning team. Four information centres were held, one each in Aroland, Ginoogaming, Pays Plat and Constance Lake First Nation. Long Lake #58 First Nation representatives attended the open house at Ginoogaming First Nation. The purpose of the information centres was to outline the forest management planning process, collect values information and to present all information that was available at the second information centres (during the formal public consultation process).

In addition, the feedback of each First Nation community was requested concerning the Draft Native Values Protection Agreement for the Kenogami Forest. Matawa First Nation Management followed-up with a second round of community meetings. It was expected that the values collection efforts would be finalized that these meetings. At the time of final plan submission the information gathered from the values collection exercise has not been provided to the planning team. As an aside, the values collection efforts have been ongoing ever since and have contributed to meet some of the needs of the 2005-10 FMP.

In addition to the formal process, meetings were held with a number of First Nations individuals, on an informal basis throughout the planning term, to identify specific values and to negotiate mutually acceptable harvesting conditions. Planning team members have also met with the Weskit-chi Trappers Association, who have similar concerns and interests, but are not directly linked to the band councils.

The First Nations communities considered the *Native Background Information Report* and the *Report on Protection of Identified Native Values* unresolved issues at the time of final plan submission. This, and unresolved issues concerning Weskit-chi Trappers Association, were discussed in Section 2.3.2.3 of the FMP.

(2) Develop a methodology to assess and allot forest management opportunities relating to Term and Condition 77 as they arise, that is fair and mutually agreeable to all concerned parties

A procedure was jointly developed between KC and Matawa First Nations Management, intended to provide an appropriate method to assess and allot economic opportunities as they arose, in a manner that was fair to all parties. It was meant to be a two-way street where any First Nation individual or community, Kimberly Clark, Longlac Wood Industries or anybody could identify opportunities, and have each opportunity dealt with in a fair and consistent manner. With the mutual consent of the First Nation communities, it was determined that Matawa First Nations Management would essentially act as a co-coordinator. This methodology was referred to as the "Matawa agreement", the details of which are outlined in Section 2.3.3.2.1.3 of the FMP.

(3) Develop an interpretation of the Class EA for Timber Management on Crown Land, Term and Condition 77 that is consistent and agreeable to First Nations, MNR and forest industry.

Condition 77 stated (in part):

> During the term of this approval, MNR district managers shall conduct negotiations at the local level with Aboriginal peoples whose communities are situated in a management unit, in order to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits provided through timber management planning.....MNR shall report on the progress of these on-going negotiations district-by-district in the Annual Report on Timber Management that will be submitted to the Legislature (Condition 82 and Appendix 20).

The MNR District Reports for Term and Condition 77 (now called MNR District Report for Forest Management Class EA Condition 34) have been provided to the SFL holder on an annual basis for the four fiscal years 2000-01 to 2003-04.

**FIRST NATIONS SILVICULTURAL OPPORTUNITIES**

| Year | First Nation | Project | Contractor | Contract Value | | Performance | |
|---|---|---|---|---|---|---|---|
| 2000-01 | | Tree Plant | Matawa F. N. Management | 444,000 trees | $91,064 | 381,266 trees | $78,198 |
| | | Free-to-Grow | Matawa F. N. Management | 2,323 ha | $9,524 | 2,264 ha | $9,282 |
| | | Aspen Spacing | Matawa F. N. Management | 88 ha | $48,864 | 83 ha | $46,114 |
| | Whitedog | Stock Production | Aga-ma-ki-mi-sa-bai | 400,000 trees | $70,000 | 0 trees | $0 |
| | | | | | **Subtotal:** **$219,453** | | **Subtotal:** **$133,594** |
| 2001-02 | | Tree Plant | Matawa F. N. Management | 303,300 trees | $62,207 | 300,696 trees | $60,726 |
| | | Aspen Spacing | Matawa F. N. Management | 134 ha | $76,600 | | |
| | | | | | **Subtotal:** **$138,807** | | **Subtotal:** **$60,726** |
| 2002-03 | | Tree Plant | Matawa F. N. Management | 824,600 trees | $161,209 | 844,936 trees | $163,773 |
| | | Pine Thinning | Geraldton Community Forest | | | | |
| | Aroland | Aspen Spacing | Matawa F. N. Management | 0 ha | $0 | | |
| | | | | | **Subtotal:** **$161,209** | | **Subtotal:** **$163,773** |
| 2003-04 | | Tree Plant | Matawa F. N. Management | 435,500 trees | $93,415 | | **$25,611** |
| **Total 2000-05 FMP Period** | | | | | **$358,260** | | **$194,320** |

A summary of silvicultural projects that have been awarded (including contract value and performance) has been provided in the attached table. More detailed information concerning these specific contracts (of a confidential nature) will be made available to the audit team upon request. A number of other silvicultural opportunities have been made available over the planning term (involving tree planting, pre-commercial thinning, Free-to-Grow assessments and slash pile burning), but were either declined by Matawa or not bid on by the deadline dates.

With respect to harvest opportunities, very few opportunities actually arose or have been achieved over the 5-year period. At the time of plan preparation, it was apparent that very few new harvest opportunities existed (without negatively affecting the existing workforce). A strategy was undertaken to identify timber that had traditionally not been harvested by existing operators – either as previous bypass or in small concentrations that would be costly to the larger existing businesses. Allocations of the Other Conifer forest unit for example (comprised predominately of cedar and larch working groups) were intentionally over-allocated to address the many requests to provide harvest opportunities for small-scale entrepreneurs, primarily related to Term and Condition 77. Many of these stands had a sizable component

of spruce and were near or adjacent to existing roads. It was also thought that bypass areas would develop over the 5-year term, more suited to a small-scale operator (especially with a road network in place).

A Third Party Agreement was reached between Kimberly-Clark and M'Sunan Logging (based out of Aroland First Nation) in 2000-01, with these allocations in mind. Unfortunately, M'Sunan Logging was not able to meet the obligations of the agreement and the arrangement ultimately failed with only 743 $m^3$ being harvested. This business has not operated on the management unit since that time.

Appendix "E" of the Kenogami forest SFL contains a commitment for 75,000 m3 annually to Hearst area sawmills. Specific conditions were attached to this commitment, including specific volumes to specific mills, and a commitment by the receiving mills that they must enter into joint ventures with Constance Lake First Nation (CLFN) to ensure access to the wood supply. The MNR determined that Constance Lake would be harvesting the committed volume and in the late 1990's the Band undertook to build a harvesting business under the name of Mammamattawa Incorporated for both this volume and volume from other management units further east. This information came to light very late in this planning process and discussions had not been finalized with the union representing the KC and LWI workforces.

Neenah Paper has been negotiating with Constance Lake First Nation over the 5-year FMP period, through their business enterprise Mammamattawa Inc., trying to secure a workable agreement. The negotiation has been an ongoing difficult and complicated process, trying to reach a mutually acceptable agreement, working in different MNR administrative districts and regions, affecting wood delivery (and costs) to other receiving mills (Lecours Lumber), and dealing with issues of the organized workforce. Second-party arrangements (with Mammamattawa harvesting on behalf of Kimberly-Clark) had been in place for one year, but the associated and necessary road construction was not successful. A Third Party Agreement was finally reached in December, 2004 and efforts continue into the 2005-10 period.

Objective B5: To identify, maintain and protect the cultural and spiritual values of all forest users.

The target established by the planning team was to fully involve all interested parties, in contributing to the collection of cultural and spiritual values. As discussed previously, at the time of final plan submission all of the information gathered from the values collection exercise had not been provided to the planning team. All values that were identified did receive Area of Concern protection, consistent with the prescription identified in the Report on the Protection of Identified Native Values.

Objectives Relating to the Provision of Forest Cover:

Objective C1: To maintain suitable habitat conditions for a selected list of wildlife species, as recommended by the MNR Northwest Region Landscape and Diversity Implementation Team, by implementing forest management activities that allow for natural variations in habitat.

The target established by the planning team was to maintain habitat indices (habitat units) for the list of indicator species within an acceptable range over time. This objective was achieved with analysis of SFMM projections for the various management alternatives and the ultimate selection of the Selected Management Alternative.

Objective C2: To protect, maintain and provide habitat for marten, by implementing forest management activities that allow for natural fluctuations in habitat.

The target, as outlined in the Forest Management Guidelines for the Provision of Marten Habitat and endorsed by the planning team, was to maintain 10 - 20 % of the forest, which has the capability to produce marten, in suitable conditions and arranged in "core habitat areas" across the landscape. A total

of 21 marten core areas were identified and placed across the landscape following the direction of the Forest Management Guidelines for the Provision of Marten Habitat. "Suitable" and "capable" marten habitat were queried from FRI land base information, using criteria compatible with those guidelines. The total area captured in cores amounted to 112,217 hectares (excluding water and non forested land) and the total suitable habitat up to 45,147 hectares. This represented a total suitable habitat percentage captured in cores of 8.3%. There was no requirement to incorporate marten core area deferrals into the SFMM model during the preparation of the 2000-05 FMP.

Objective C3: To protect and enhance habitat for moose outside the "caribou management zone", while maintaining habitat within the zone, by implementing forest management activities that allow for natural fluctuations in habitat.

Objective C3 was proposed by the planning team to address the habitat needs for moose outside the "caribou management zone", while maintaining habitat within the zone. SFMM analysis demonstrated that this objective was achieved from a non-spatial aspect, within the individual sub-units. The percentage change for both "moose winter" and "moose foraging", in the Selected Management Alternative results closely mimicked the projections for the Null Hypothesis, in the "Moose" sub-unit (outside the "caribou management zone"). The configuration of actual harvest allocations was also very relevant in the achievement of this objective. The Area Biologist reviewed all allocations and AOC prescriptions were applied where appropriate.

Objective C4: To protect, maintain and provide habitat for woodland caribou within the "caribou management zone", by implementing forest management activities that allow for natural fluctuations in habitat.

During the preparation of the plan, SFMM projections and changes in preferred caribou habitat areas over time were reviewed. Within the sub-units defined by the caribou mosaic, changes were positive in terms immediately preceding harvest, and then drastically dropped during and following harvest, then slowly built up again to a positive situation. SFMM results indicated that the mosaic pattern seemed reasonable and sustainable.

Objective C5: To protect and maintain suitable habitat values for all other fish and wildlife species as directed by appropriate MNR guidelines.

The target developed for this objective was to maintain habitat availability consistent with the goals and direction as outlined in various provincial and district management guideline publication. The stated strategies were essentially to adhere to all applicable MNR guidelines and resource manuals (regarding wildlife, fisheries, water crossings, and working in riparian areas) and to develop Area of Concern prescriptions for all habitat values relating to fish and wildlife species affected by forest management operations. This was achieved in operational planning stages of the FMP.

Objective C6: To ensure that suitable habitat conditions are provided on the Kenogami Forest to sustain a viable trapping industry.

The targets and strategies for this objective are identical to those for objective C1, with the additional strategy of negotiations with individual trappers during the planning process. Involvement of trappers has increased over the span of the 2000-05 FMP. There are representatives from the district trapper's association sitting on the LCC and the 2000-05 and 2005-10 planning teams. Neenah Paper has always encouraged trappers to come into the office to discuss concerns, precise location of allocations, road construction and maintenance plans, timing of operations and to avoid unnecessary conflicts. There have been some instances over this planning term where damage to personal property (traps) has occurred.

Objective C7: To maintain remoteness of existing remote resource based commercial tourism.

Objective C8: To maintain opportunities for a viable road based tourism industry within the Kenogami Forest.

Objective C9: To maintain and provide opportunities for optimum levels of local employment derived from all other non-timber related businesses.

Objective C10 To maintain or enhance current levels of opportunity for resource based recreation.

Quantitative targets were not established for these last four objectives. The 2000-05 FMP incorporated mandatory direction from other sources (guidelines, etc.) and in so doing, most objectives related to the provision of forest cover have been addressed (especially those related to wildlife habitat). Other objectives in this category have been dependent upon a close working relationship with other forest users such as trappers, recreationalists, tourist operators and various members or interest groups from the general public - some local, some not. A measurable target was impossible to predict for these objectives at the time of FMP preparation, and it is only possible to offer a subjective opinion.

With respect to remote tourism in particular, spatial considerations were of primary importance and strategies involved individual consultation and negotiation throughout the entire planning process and throughout the implementation of the plan. Agreements between tourist operators and Neenah Paper were incorporated into this plan, and adhered to. Reasonable levels of communication have been maintained between Neenah Paper and individual tourism business owners. One indicator that this objective was achieved over the 2000-05 timeframe (at least to the expectation of the remote tourism business owners) was that there was only one negotiation of a Resource Stewardship Agreement that went to issue resolution in the preparation of the 2005-10 FMP.

Opportunities for local employment related to non-timber businesses have not been measured, but in some respects are directly linked to the stability of timber related businesses (as support services, or from dependence on road infrastructure, etc.). With respect to Objectives C8, C9 and C10, opportunities have been provided by (generally) allowing public access on all roads. The fundamental strategy concerning road access over the planning period was to develop and maintain a forest road network to provide access for all aspects of forest management, while recognizing the needs and values of all forest users. The road access program has had an influence on such interests (objectives) suitable habitat conditions, trapping, tourism and recreation, as well as landscape processes, fibre supply and delivery, utilization, employment levels, cultural and spiritual values, and silviculture. The primary focus was to completely access allocated harvest, renewal and tending areas for the 5-year FMP, and this was achieved.

Objective D1: To ensure the sustainability of the forest and improve forest growth and health with effective renewal and maintenance programs using available forest renewal funds and current silvicultural knowledge and technology.

The targets that were defined by the planning team were as follows:

- To develop and employ silvicultural strategies which contribute to the achievement of the desired future forest condition, and maintain forest unit stability and age class distribution.
- Ensure silvicultural strategies provide future forest conditions that will allow the achievement of all formal MNR timber supply commitments, as specified in Appendix "E" of the Sustainable Forest Licence.
- Ensure silvicultural strategies provide future forest conditions that will allow the availability from the Kenogami Forest, of 748,000 m3 of conifer and 50% of the poplar volumes (to a maximum of 310,000 m3) for the KCFP mill in Terrace Bay. (These volumes are consistent with the MNR Regional Rationalization of Wood Demand, September 1997.)

- Ensure the maintenance of the white spruce working group on the Kenogami Forest. (Table FMP-2 indicated that the white spruce working group represented 0.34% (5,560 ha) of the Total Productive Forest Area).

Silvicultural strategies related to the management of forest cover were developed in order to achieve other management objectives (those related to biodiversity, social and requirements and forest cover) and in order to achieve the desired future forest condition. As such, they pertained to different harvest methods, levels of renewal and tending treatments and associated funding requirements. The strategies were developed in consideration of different tree species and site conditions, and involved classification of the forest into ecosites and forest units to appropriately describe the current forest condition. The forest development information (yield curves) and silvicultural ground rules were developed in order to guide the management of forest cover, in consideration of the current forest condition and inter-related SFMM modeling assumptions (operability ranges, natural disturbance cycles and succession, post-harvest succession, costs).

With respect to the first target, and as discussed previously, specific SFMM projections relating to forest unit stability and age class structure enabled the planning team to define the desired future forest conditions during the preparation of the plan, when the different management alternatives were being analyzed. The SFMM inputs associated with those projections incorporated the specific limitations, constraints or options of the various SGRs and treatment packages.

The next two volume-related targets were achieved on a strategic level, during the development of the Selected Management Alternative, as evidenced in SFMM projections of future volume supply. The errors and concerns regarding yield projections and the volume shortfalls have been addressed in earlier discussion.

With respect to white spruce, Table FMP-2 of the 2005-10 FMP indicates that this working group now occupies 0.53% (8,742 ha) of the Total Productive Forest Area.

Other silvicultural strategies included those related to site preparation, regeneration and tending, Free-to Grow projects, forest protection, and renewal support. A summary of these efforts has been provided in previous text.

Conclusion

Although it is too early to make a firm determination regarding objective achievement without the complete 5-year annual report information, with the exception of wood supply, most forest management objectives have been tracking in a positive manner. The planning team in preparation of the 2005-10 FMP recognized and addressed a number of areas of improvement, most notably with the development of new yield curves, forest units, natural and post-harvest succession assumptions and planning inventory updates.

## Assessment of Forest Sustainability

As mentioned in the introduction to this report, due to the timing of the Independent Forest Audit (IFA), the requirements of the Report of Past Forest Operations as outlined in the FMPM have not been completed for the 2000-05 term. However, reference is made in Appendix C to Criteria 7.4 of the 2005 *IFA Process and Protocol* and speaks to the requirement of reviewing forest sustainability trends using evidence provided in previous RPFOs. Highlights of the 1995-2000 RPFO Summary dealing with sustainability are discussed in following text, as are some common forest sustainability indicators used in the preparation of the 2005-10 FMP.

The Crown Forest Sustainability Act (CFSA) states that "indicators" within appropriate criteria are to be measured to assess sustainability. The FMPM directs that an assessment of sustainability be included as part of the RPFO and clarifies how the assessment is to be produced, including an examination of the measurable indicators of forest sustainability criteria, an analysis of any changes that may have occurred to the forest condition and/or the socioeconomic condition.

The FMPM details that five forest sustainability criteria in particular, are to be considered in the assessment. These are summarized in Figure C-1 (Section 4.3 in the FMPM), and include:

- Biodiversity
- Forest Condition and Ecosystem Productivity
- Multiple Benefits to Society
- Soil and Water Conservation
- Accepting Society's Responsibility for Sustainable Development

Measurable indicators pertaining to each criterion are used predicatively during the preparation of forest management plans, in helping to describe the current forest condition and in the analysis of management alternatives. The indicators that are used in a predictive fashion, and are intended to be monitored over time and reported in RPFO tables include:

(1) Managed Crown Forest Area Available for Timber Production
(2) Landscape Pattern or Forest Diversity Indices
(3) Habitat for Selected Wildlife Species
(4) Percent of Available Harvest Area which is Actually Utilized
(5) Frequency Distribution of Clearcut and Wildfire Sizes.

Report of Past Forest Operations for the 1995-2000 Period

An assessment of sustainability was undertaken during the preparation of the RPFO for the 1995-2000 period on the Kenogami Forest (formerly the Longlac Forest – FMA No. 502700, the Nakina Forest – FMA No. 502300 and the Geraldton Company Management Unit – Licence No. 327900). The conclusions provided in the RPFO Summary were as follows:

The amount of Managed Crown Forest Available for Timber Production was reduced significantly over the reporting term. Further reductions will bring the long-term wood supply targets (and perhaps employment levels) into question. SFMM modeling assumptions pertaining to the amount of area that is actually "available" (including short-term wildlife habitat deferrals) will be of greater import during the next planning cycle.

- An analysis of the landscape pattern indices on the Kenogami Forest in the context of larger scales has placed the Kenogami Forest no worse than average, and in some regards relatively better than average.
- The percent of area harvested on the Kenogami Forest was 94.1% of the available harvest was actually utilized, and was considered to be acceptable as supply and demand were essentially matched.
- Regarding the frequency distribution of clearcut and wildfire sizes, the distribution pattern on the Kenogami Forest (many small disturbances and a relatively few large ones, with the larger disturbances occupying the majority of the disturbance area), duplicates the sub-regional pattern. Past forest management practices and strategies have resulted in the creation of a range of cutover area sizes throughout and across the Kenogami Forest that suggests that the pattern of harvest was not grossly different from the natural pattern.

The FMPM suggests that forest sustainability cannot be based upon the analysis of one or two indicators over a 5-year timeframe, but must consider the full range of indicators, forest condition and socioeconomic condition, over several planning cycles. Some other indicators that were assessed and discussed in the 1995-2000 RPFO included:

- Water yield, as an indicator of landscape processes, reflected favorably on the Kenogami Forest.
- The involvement of First Nation communities in forest management planning increased over the 1995-2000 term. All communities within or adjacent to the Kenogami Forest were involved during this timeframe, with the development of the 2000-05 FMP and a forester represented their interests in that plan.
- Fire suppression activities have contributed to the older average age of the current forest condition. As well, the proportion of hardwoods and mixedwoods throughout the Kenogami Forest is likely higher than the natural forest, with more balsam fir. The area of pure jack pine stands is likely lower than the natural boreal forest.
- Community viability did not suffer through the efforts of forest management over the 1995-2000 term.
- Commercial tourism businesses were, by most accounts, reasonably successful over the reporting period. The most serious impact to this sector on the Kenogami Forest has been the closure of the spring bear-hunting season (not a forest management issue).
- The non-industrial and non-commercial uses of the forest, relating primarily to personal recreational activities, continued to be made available to the public for the 5-year term.
- Generally, harvest areas and volumes have been fairly consistent over many planning terms. Wood supply and demand were balanced appropriately for the reporting period.

Forest sustainability indicator values, where available, demonstrated that the Kenogami Forest was similar, if not better that the values of a larger, geographical (regional) context. Social values had for the most part, been adequately addressed, in the context of employment and recreational interests. There remained to be very significant issues in the First Nation communities.

The 2005-10 Kenogami Forest FMP

As stated earlier, some of the same measurable indicators are used predicatively during the preparation of forest management plans in helping to describe the current forest condition, in the analysis of management alternatives and in the assessment of forest sustainability for the Selected Management Alternative.

*Managed Crown Forest Area Available for Timber Production*

One component in providing for a continuous and predictable flow of multiple benefits from Ontario's forests is the maintenance and enhancement of the production capability of those forests. In order to ensure that resources are conserved while still maintaining a satisfactory flow of benefits to society, efforts must be made to ensure that resource extraction is not allowed to exceed the long-term production capability of the resource base. At the same time, the area of managed Crown forest available for timber production, in the context of sustainability, should be maximized.

As presented in Table 1 of this Trend Analysis report, the Crown Managed Forest Area has remained relatively stable over the 5-year period from 2000 to 2005 and as an indicator of sustainability, is acceptable. However, it is worth noting that a significant net loss of "available" Crown forest (8.5%) is projected to occur, coincident with achieving the Desired Future Forest Conditions calculated in the 2005-10 FMP. This projected loss reflects the accumulating effect of increased Area of Concern reserves being applied (varying from 9% to 24 % among the different forest units).

*Landscape pattern*

Landscape pattern is an indicator of biodiversity that describes the *composition* and *configuration* of a landscape. Composition refers to the presence and amount of any one particular patch type, while configuration refers to the spatial arrangement of those associated areas of patches. The spatial configuration of landscape units is important since it can affect a number of different ecosystem functions such as habitat value, seed dispersal and fire.

As forest operations and other natural events occur over time, the landscape and diversity indices will change. The sustainability of operations can be partially assessed by calculating these same indices on the forest at the start and end of a planning term. Unfortunately, as depletion information is not yet available for the entire 2000-05 timeframe, it is not possible to make a definitive comparison at this time. However, a second set of landscape pattern analysis was undertaken during the preparation of the 2000-05 FMP, following the selection of harvest areas. That analysis suggested that the proposed harvest patterns were sustainable, based on the fact that all changes of the indicators (by more than 10%) could be explained by natural variability, or by the application of the plan objectives.

During the preparation of the 2000-05 and 2005-10 FMPs, landscape pattern indices were generated from spatial analysis at various landscape levels (provincial, regional, sub-regional and management unit scales). The reporting of this current forest condition allowed the management unit to be placed within a broader ecological context. The indicators provided from both series of analysis demonstrate that the Kenogami Forest is arranged in a manner similar to the arrangement of larger scales.

*Forest Diversity Indices*

The maintenance of particular landscape characteristics (e.g. amount of forest types and age classes, forest patch size and distribution, etc) increases the likelihood that biodiversity associated with the landscape will be perpetuated. Acceptable levels for this indicator, as stated in the FMPM, should have the SFMM-generated indices falling "within a defined eco-regional range", and be "within the bounds of natural variation". The eco-regional range of acceptable levels was not clearly defined during the preparation of the 2000-05 FMP. Analysis of this indicator involved comparisons of SFMM outputs of three indices between management alternatives to the Natural Forest scenario (the "Null Hypothesis"):

1) The Shannon Weiner Index of Landscape Heterogeneity
2) The Simpson Index of Landscape Heterogeneity
3) The Shannon Index of Landscape Evenness

Due to the broad nature of these particular indices, their value in assessing sustainability has become less desirable and during the preparation of the 2005-10 FMP, the planning team used forest composition (areas of each forest unit through time) as the indicator for this assessment. The Strategic Forest Management Model (SFMM) was the predictive model used to project these values over time. Acceptable levels, as defined in the FMPM, occur when indicator values fall "within the bounds of natural variation". The upper and lower bounds in this assessment were set as 20% above the highest and 20% below the lowest value of the Natural forest scenario, over a 200 year period. The Selected Management Alternative met this criteria.

*Habitat for Selected Wildlife Species*

The 2005-10 FMP planning team was able to identify the current and future amount of preferred habitat area for the selected species using the scenario of the Selected Management Alternative. This was the second FMP to be prepared for the Kenogami Forest under the new planning manual. The management unit values were reported for the entire unit in the 2000-20 FMP, and not on a sub-regional basis within the management unit. As such the "Percent Change from Previous Plan" in Table FMP-5 could not be determined (on a sub-regional basis within the management unit).

Some significant differences of preferred habitat were projected between the current forest condition (in 2005) for a number of species, and the desired future forest condition (in 2135). These differences in preferred area are a direct result of projected forest management activities and natural forest dynamics over time. The differences are consistent with the projected changes in the forest structure, composition and condition over time.

*Landscape Processes*

Water yield is directly affected by the amount of watershed area clearcut or burned within the past 10 years. Analysis enabled the 2005-10 planning team to determine the percentage of productive forest area disturbed within the past 10 years (10.36%), in relationship to total productive forest area within second order watersheds. This is a 1.15% reduction compared to the 2000-05 plan. Direction for this analysis can be found in another draft bulletin produced by the MNR Landscape and Diversity Implementation Team (Bulletin #9, February, 1998) entitled *Hydrology in Forest Management Planning in the Northwest Region.* The best management practices described in the *Forest Management Guidelines for the Protection of the Physical Environment* state that harvest areas within a five-year plan, plus past harvested areas not yet declared free-to-grow, should not exceed greater than 50% of a watershed area.

*Frequency Distribution of Clearcut and Wildfire Sizes*

Since depletion data for the entire 5-year term is not available, a "before and after" assessment for this indicator of sustainability is not possible for the 2000-05 FMP. The distribution of clearcut and wildfire sizes at the beginning of the plan (in 2000) were assessed and compared with the distributions with selected harvest areas included (representing the pattern in 2005). This indicator should show movement towards emulation of natural disturbance frequency by size class. Unfortunately, the data for wildfire disturbances in size classes greater than 10,000 hectares was not available for Site Region 3W. This limited the planning team's ability to some extent, in determining if the changes proposed were significantly different from the natural pattern. However, the frequency distribution of the natural pattern in Site Region 3W contained many small disturbances with few large ones - the large disturbances occupying the majority of the disturbance area. This was consistent with the general pattern shown on the Kenogami forest in 2000, and as projected in the year 2005. It was determined that the proposed harvest was not grossly different from the natural pattern now, and would remain close to the natural pattern with the selected harvest areas.

Spatial analysis undertaken during the preparation of the 2005-10 FMP was much better defined, with analytical tools being much more sophisticated. A "natural" disturbance frequency (the Kenogami Template) was developed from historical fire disturbance data from the various site regions affecting the Kenogami Forest. In order to assess the landscape from this spatial perspective, the planning team was required to conduct an analysis at three separate timeframes – the current forest in the year 2005, the forest aged to 2010 with planned harvest activities included and thirdly, the forest aged to 2010 without harvest activities considered.

The Kenogami Template suggested that there would naturally have been many more disturbances in the smaller size classes, and far fewer disturbances in the larger size classes. The current forest condition (in 2005) also resembled a similar distribution, either above or below the natural template, depending on the size class. The general direction the planning team has taken in selecting planned harvest areas was appropriate and successful in this respect.

## Conclusion

The available information indicates that the Kenogami Forest has been and continues to be managed in a sustainable fashion. During the preparation of the 2000-05 FMP, the planning team was able to demonstrate through the analysis of management alternatives and a spatial test of the selected harvest areas, that sustainability would not be compromised. Looking backward, i is not possible to provide a thorough assessment of forest sustainability with the absence of some spatial data. Non-spatial data indicates that there have been no significant variations from what was forecasted during the preparation of the plan. The indicators of sustainability do not demonstrate undue or extreme fluctuations.

The requirements for assessing and demonstrating sustainability have become better defined and more rigorous during the preparation of the 2005-10 FMP. Through the analysis of management alternatives for the indicators of sustainability, the Selected Management Alternative was determined to be sustainable. The comparison between the scenario incorporating planned operations and the Selected Management

Alternative revealed very consistent projections for all non-spatial indicators and forest sustainability will not be compromised with the forecast harvest areas. In considering the existing conditions (existing disturbance patterns) and other factors and limitations influencing the final harvest selections, the planning team has deemed that the spatial assessments of sustainability have also produced favourable and acceptable results.

# Appendix B

# Audit Team Members and Qualifications

## Audit Team Members and Qualifications

| Name | Role | Responsibilities | Credentials |
|---|---|---|---|
| **Mr. Rod Seabrook** | Lead Auditor | • Overall audit coordination<br>• Oversee activities of audit team members<br>• Review requirements and contractual obligations<br>• Lead review of achievement of management objectives and forest sustainability<br>• Lead audit report preparation | M.Sc. Biology, CEA(SFM) EMS(LA); 24 years forestry experience in Ontario; auditor on 11 Independent Forest Audits (seven as lead auditor), 28 ISO 14001 audits, four CSA Z809 audits, seven SFIS audits and one FSC audit. |
| **Mr. Peter Higgelke** | Forest Management Planning Auditor | • Planning requirements related to public participation and planning team activities<br>• Review RPFO<br>• Assist in assessment of achievement of management objectives and forest sustainability | R.P.F., M.Sc. Forestry; Wildlife auditor for one FMA Review and two IFAs. Harvesting or silvicultural auditor for five IFAs. |
| **Mr. Peter Street** | Silviculture Operations Auditor | • Assess silvicultural planning and operations<br>• Assist in assessment of achievement of management objectives and forest sustainability | R.P.F.; over 20 years forestry experience in Ontario; auditor on two IFAs; and a variety of forest industry experience including supervision and management responsibilities. |
| **Mr. Tom Richardson** | Harvesting Operations Auditor | • Assess harvest planning and implementation<br>• Review compliance program planning and implementation<br>• Assist in assessment of achievement of management objectives and forest sustainability | 33 years of forestry experience, including 30 years with the MNR and three years as an independent forest consultant; professional skills in wood measurement, forest compliance. |
| **Mr. John McNicol** | Wildlife/Ecology Auditor | • Review and inspect AOC documentation and practices<br>• Review and inspect aspects of forest management related to environmental practices, values and wildlife protection<br>• Review access planning and implementation<br>• Assist in assessment of achievement of management objectives and forest sustainability | M.Sc. Zoology; 31 years forestry experience; co-authored many of the guidelines currently used in forest management planning; auditor or technical advisor on eight Independent Forest Audits. |
| **Ms. Susan Jarvis** | Modelling (SFMM) Auditor | • Review the long-term strategic planning in the SFMM cases for the 2000-2005 FMP<br>• Assist in assessment of achievement of management objectives and forest sustainability | R.P.F.; 23 years of forestry experience in Ontario; auditor on 12 Independent Forest Audits. |

| Name | Role | Responsibilities | Credentials |
|---|---|---|---|
| **Ms. Mary Anne Seabrook** | First Nations Auditor | • Consultation with local First Nations<br>• Review First Nation consultation in forest management planning.<br>• Review negotiations associated with T&C 77. | Business Dipl.; of Ojibway descent and a member of the Red Rock Indian Band; experience with First Nation organizations including the Ontario Metis and Aboriginal Association, the Red Rock Indian Band, Meno Bimahdizzewin Child and Family Services. Auditor on three Independent Forest Audits. |
| **Mr. Dave Thomson** | Secretariat | • Review documentation and practices related to the forest management planning process and public participation<br>• Coordinate document distribution and logistics and audit report preparation | R.P.F.; 27 years of forestry and resource management experience in Ontario and Manitoba; completed ISO 14001 lead-auditor training. Audit Secretariat on two Independent Forest Audits. |

# Appendix C

# Independent Forest Audit Guiding Principles

## Independent Forest Audit Guiding Principles

| Guiding Principles within the Independent Forest Audit Process and Protocol |
|---|
| **1. Commitment** |
| Commitment is reflected in vision, mission and policy statements of the company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization. |
| **2. Public Participation** |
| The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the forest unit. |
| **3. Forest Management Planning** |
| The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated. |
| **4. Plan Implementation** |
| Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported. |
| **5. System Support** |
| System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree. |
| **6. Monitoring** |
| The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed. |
| **7. Achievement of the Management Objectives and Forest Sustainability** |
| Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations. |
| **8. Contractual Obligations** |
| The licensee must comply with the specific licence requirements. |

# Appendix D

# List of Acronyms

## List of Acronyms

| | |
|---|---|
| AF&PA | American Forest & Paper Association |
| AHA | Available Harvest Area |
| AOC | Areas of Concern |
| AR | Annual Report |
| AWS | Annual Work Schedules |
| B&S | Barren and scattered |
| CEA(SFM) | Certified Environmental Auditor-Sustainable Forest Management |
| CFSA | Crown Forest Sustainability Act |
| CLAAG | Careful Logging Around Advanced Growth |
| DNBIR | Draft Native Background Information Report |
| EA | Environmental Assessment |
| EBR | Environmental Bill of Rights |
| EMS(LA) | Environmental Management System-Lead Auditor |
| FFC | Forestry Futures Committee |
| FIM | Forest Information Manual |
| FMA | Forest Management Agreement |
| FMNCP | Forest Management Native Consultation Process |
| FMP | Forest Management Plan |
| FMPM | Forest Management Planning Manual |
| FOIP | Forest Operations Information Program |
| FOIR | Forest Operations Inspection Report |
| FOP | Forest Operation Prescription |
| FRI | Forest Resource Inventory |
| FRL | Forest Resource Licence |
| FTG | Free-to-Grow |
| GANRAC | Geraldton Area Natural Resources Advisory Committee |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| HARAM | Harvest and Renewal Algorithm |
| HPA | High Priority Aspect |
| ICWC | In-Compliance-With-Comments |
| IFA | Independent Forest Audit |
| IFAPP | Independent Forest Audit Process and Protocol |
| KBM | KBM Forestry Consultants Inc |
| LCC | Local Citizens Committee |
| LWI | Longlac Wood Industries |
| MAFA | Moose Aquatic Feeding Area |
| MNR | Ministry of Natural Resources |
| NDPEG | Natural Disturbance Pattern Emulation Guideline |
| NIC | Not-In-Compliance |
| NRVIS | Natural Resource Values Information System |
| NSR | Not Satisfactorily Regenerated |
| ONAS | Ontario Native Affairs Secretariat |
| OLL | Ontario's Living Legacy Land Use Strategy |
| PAR | Provincial Annual Report |
| PRPINV | Preliminary Report on Protection of Identified Native Values |
| R.P.F. | Registered Professional Forester |
| RPFO | Report of Past Forest Operations |
| RTA | Forest Renewal Trust Account |
| SEIM | Socioeconomic Impact Model |
| SEV | Statement of Environmental Values |
| SFI | Sustainable Forestry Initiative |
| SFL | Sustainable Forest Licence |
| SFMM | Strategic Forest Management Model |
| SFMS | Sustainable Forest Management System |
| SGR | Silviculture Ground Rule |
| SMART | Safety Management and Assessment Rating Tool |
| STP | Silvicultural Treatment Package |
| T&C | Term and Condition |
| TAR | Trend Analysis Report |
| TMP | Timber Management Plan |

# Appendix E

# Summary of Input to the Audit Process

## Summary of Input to the Audit Process

### General Public/Other Stakeholders

An advertisement was placed in five local newspapers (Wawatay News, Thunder Bay Chronicle Journal, Geraldton Times Star, Terrace Bay-Schreiber News, and Longlac Advertiser Plus) providing notice of the audit and offering the public an opportunity for input to the audit process. The notice directed the public to contact GANRAC or the audit secretariat with any comments regarding forest management activities on the Kenogami Forest.

### Public Survey

KBM prepared a one-page public survey that was distributed to all organizations and to a random sample of one-third of the individuals listed in the FMP mailing list. In total, 282 surveys were sent out. In addition, the public notice was posted on and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. Six responses were received and are summarized in Table 14.

*Table 14. Responses to Public Survey.*

| Respondent | Comment or Concern | Response |
|---|---|---|
| 1 | • Pleased with water crossings on Forest | Considered by audit team |
| 2 | • Concerned with:<br>○ slow response to an FMP information request<br>○ lack of modelling for bear<br>○ lack of SEIM modelling for angling and hunting<br>○ road removal during first 40 years (post cut) in caribou blocks<br>○ access restrictions and road removal | Considered by audit team |
| 3 | • Concerned with:<br>○ aspen regeneration<br>○ planning team involvement in the 2005 FMP production<br>○ impact of NDPEG on wood supply (hardwood) | Considered by audit team<br>Met with respondent |
| 4 | • Satisfied with the SFL holder<br>• Interested in minimizing blowdown on service corridors | Considered by audit team |
| 5 | • No concerns | |

### First Nations

The First Nations Auditor conducted interviews with representatives of three of the five First Nation communities, the Weskit-chi Trappers Association representative, the First Nations planning team member, and MNR and Neenah Paper staff. Repeated efforts to solicit input from Pays Plat First Nation and Ginoogaming First Nation were unsuccessful.

A common theme during the interviews was the need for more opportunities under T&C 77 (Condition 34). While one community was pleased with their harvest allocation, they acknowledged that they are struggling to complete it. Another community stated that unemployment is high and that they don't view bidding on a contract as necessarily being an opportunity, since their current ability to compete against other established bidders is limited. One community did not know if anyone had been hired through the surge hiring opportunities provided by Neenah Paper.

A trapping representative was concerned over the current wording contained in a Draft Native Values Protection Agreement between MNR and the First Nation communities. In addition, they felt that community elders should be consulted regarding the extent of buffer areas to be left during harvesting.

**Local Citizens Committee**
During the site visit, the audit team met with GANRAC, and members of GANRAC participated on field site visits. A GANRAC member participated in the opening meeting, the field site visits and closing meeting and seven members participated in a separate meeting with the audit team on August 23. This informal GANRAC meeting provided an opportunity for members to express their concerns and suggestions for improvement and provided input for the audit team's consideration. Overall, GANRAC members felt that the Committee was effective in its role but expressed concern over a potential imbalance of representation in the lack of a remote tourism representative and the significant proportion of members affiliated with the forest industry. They also expressed an interest in opportunities to meet with other LCCs to exchange ideas and experiences.

Following the completion of the site visit, the audit team received a copy of a letter from the LCC, addressed to the Nipigon District Manager, expressing concern over the fact that the audit process does not allow the LCC to participate in the review of the draft or draft final audit reports. The letter cited the LCC's concerns that their exclusion from portions of the audit process result in a lack of transparency and accountability, loss of training opportunities, and weakening of the LCC's advisory role. The LCC suggested that concerns over confidentiality could be addressed.

**Overlapping Licensees, Contractors and Commitment Holders**
A public survey was distributed to overlapping licensees, contractors and commitment holders on the Kenogami Forest to solicit input and to provide each respondent with an opportunity to identify and discuss any site-specific concerns. One response was received and is summarised above. Representatives of the two principal overlapping licensees also attended the pre-audit meeting, and one participated in a portion of the field audit.

**SFL Holder**
Neenah Paper staff provided the majority of the input into the audit. Methods of input included: providing background documentation such as the forest management plan, the Trend Analysis Report, maps, meeting minutes, and guiding of field inspections. The audit team recognizes and appreciates that the staff made great efforts to assemble the field binders and organize many aspects of the audit. Numerous interviews were supported with extensive discussion in the field with Neenah Paper staff. These discussions formed a significant basis for understanding forest management on the Kenogami Forest. Staff interviewed included the Director of Forest Management, Planning Forester, Forest Renewal Supervisor, GIS Specialist, Operations Foresters and the Silvicultural Forester.

**Ministry of Natural Resources**
MNR staff provided significant input into the audit through interviews and preparation of documentation. Representatives from the Geraldton office were present at the pre-audit meeting, and opening and closing meetings, as well as the field site visit. Interviews were conducted with the District Manager, Area Supervisor, Area Forester, Area Biologist, Senior Area Technician, and Area Technicians. MNR Regional and Corporate representatives also participated in the audit.

# Appendix F

# Public Survey

**KBM FORESTRY CONSULTANTS INC.**
**2005 INDEPENDENT FOREST AUDIT**
**PUBLIC SURVEY**

Every five years, as part of the Province's responsibility for resource management in Ontario, the Ministry of Natural Resources (MNR) contracts firms to evaluate forest management activities on Crown lands. KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been engaged by the MNR this year to conduct an independent forest audit of the Kenogami Forest for the period 2000-2005.

As part of our evaluation, we would appreciate your input as a member of the public with an interest in forest management on the Kenogami Forest. If you have comments related to forestry activities during the five-year period April 1, 2000 to March 31, 2005, please complete and submit this form (please see back of sheet for more information on the audit process).

*KBM provides this opportunity to comment on the Kenogami Forest audit, under the authority of Ontario Regulation 160/04 made under the Crown Forest Sustainability Act, 1994. Any personal information provided will be used solely by the audit team as input to the Kenogami Forest Independent Forest Audit. Any questions regarding the collection, use, and retention of the personal information can be directed to Rod Seabrook, Lead Auditor at 807-345-5445 ext. 261 (e-mail: rsea@kbm.on.ca) or to the company address indicated below.*

Name (optional)

Tel. and/or email (optional)

1. What is your interest in forest management on the Kenogami Forest?

Recreation ☐
Employment (forestry, tourism, etc.) ☐
Conservation ☐
Other

2. Can you identify any specific locations or activities on the Kenogami Forest that illustrate good OR poor management practices, and that the audit team should be aware of in conducting their evaluation? *(Please indicate if we may contact you for more information.)* (☐**Yes** ☐**No**)

3. Have you ever contacted forest managers with comments or concerns during the 2000-2005 audit period? *(e.g., local Ministry of Natural Resources, Neenah Paper Company of Canada.)* (☐**Yes** ☐**No**)

4. If yes, were you satisfied with the response? (☐**Yes** ☐**No**)

5. Feel free to add any additional comments (use additional sheet if required)

Please **mail, email, or fax** the completed survey (Attention: Dave Thomson) to the address/fax number below by **Monday August 15th, 2005**

The survey can also be accessed through our website, located at www.kbm.on.ca

**Although we cannot respond to everyone, we do take into consideration all comments received and thank you in advance for your input.**

KBM Forestry Consultants Inc
dthomson@kbm.on.ca

349 Mooney Avenue
Thunder Bay, ON P7B 5L5
http://www.kbm.on.ca

Tel: (807) 345-5445
Fax: (807) 345-5858

## INDEPENDENT FOREST AUDIT

## Kenogami Forest

KBM Forestry Consultants Inc. has been retained by the Ministry of Natural Resources (MNR) to conduct an Independent Forest Audit, consistent with the Crown Forestry Sustainability Act, on the management of the Kenogami Forest.

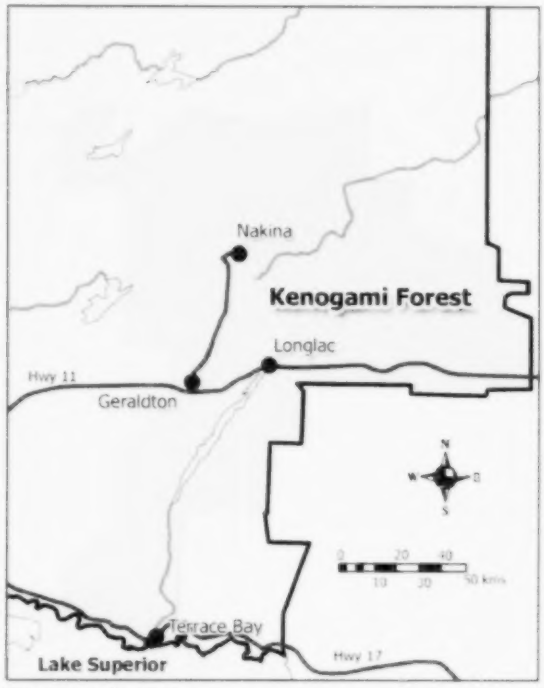
The audit covers the April 1, 2000 to March 31, 2005 operating period. You are invited to comment on the forest management activities on the Kenogami Forest for this period of time. Please mail, email, or fax this form to:

Dave Thomson
KBM Forestry Consultants Inc.
349 Mooney Avenue, Thunder Bay, ON
P7B 5L5
dthomson@kbm.on.ca
Tel: (807) 345-5445 ext. 259
Fax: (807) 345-5858
Toll-Free: 1-800-465-3001
(All correspondence sent to KBM is confidential)

Alternatively, comments can be made directly to the Local Citizens Committee Chairperson:

Mr. Edgar Lavoie, Chair
Geraldton Area Natural Resources Advisory Committee
edgarlavoie@hotmail.com
(The privacy of any information given to the LCC may not necessarily be protected)

Comments must be received by **August 15, 2005.**




**Purpose of the Independent Forest Audit**

The Purpose of the audit is to assess:

- compliance with the *Crown Forest Sustainability Act*,
- compliance with the Forest Management Planning Process,
- a comparison of planned versus actual forest management activities,
- the effectiveness of forest management activities in achieving audit criteria and management objectives,
- assess the effectiveness of previous audit action plans, and
- where applicable, a licensee's compliance with the terms and conditions of the Sustainable Forest Licence.

The eight-member audit team will evaluate forest management planning and practices such as harvest operations, forest renewal activities, road construction and maintenance as well as opportunities for public input and First Nations consultation. The main objectives of the audit are to assess compliance with provincial laws and regulations as well as comment on the effectiveness and sustainability of forestry activities on the management unit.

In addition, the independent forest audit provides an opportunity to improve Crown land management in Ontario through adaptive management. The audits are conducted by consultants that are independent of the Ministry of Natural Resources and the companies being audited, and firms are selected in an arms-length process by the Forestry Futures Committee of Ontario.

# Appendix G

# Public Notification

## KENOGAMI FOREST
### Independent Forest Audit

KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been retained by the Ontario Ministry of Natural Resources to conduct an Independent Forest Audit, consistent with the Crown Forest Sustainability Act, on the management of the Kenogami Forest.

The purpose of the audit is to assess forest management within the Kenogami Forest during the five-year period April 1, 2000 to March 31, 2005, specifically:

- compliance with the Crown Forest Sustainability Act;
- compliance with the Forest Management Planning process;
- a comparison of planned vs. actual forest management activities;
- the effectiveness of forest management activities;
- the effectiveness of previous audit action plans; and
- compliance with the terms and conditions of the Sustainable Forest Licence.

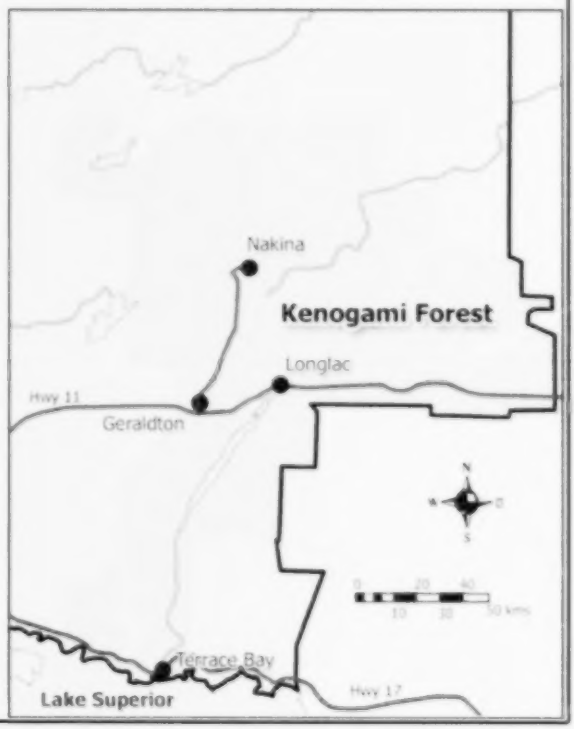
You are invited to comment on forest operations on the Kenogami Forest for this period of time. Please provide your comments, by **August 15, 2005**, directly to the Geraldton Area Natural Resource Advisory Committee:

Mr. Edgar Lavoie, Chair
edgarlavoie@hotmail.com

(The privacy of any information given to the LCC may not necessarily be protected)

Alternatively, comments can be sent directly to the address below:

Mr. Dave Thomson
KBM Forestry Consultants Inc.
349 Mooney Avenue
Thunder Bay, ON P7B 5L5
Tel: (807) 345-5445 x259
Fax: (807) 345-5858
Toll-Free: 1-800-465-3001
dthomson@kbm.on.ca

All correspondence sent to KBM is confidential.

**For more information or to download our public audit survey, please visit: www.kbm.on.ca.**